NASA TECHNICAL MEMORANDUM

NASA TM X- 72822

NASA TM X- 72822

HYPERSONIC RESEARCH ENGINE/AEROTHERMODYNAMIC INTEGRATION MODEL - EXPERIMENTAL RESULTS

Volume II - Mach 6 Performance

by

Earl H. Andrews, Jr. and Ernest A. Mackley

Langley Research Center

and

Engineering Staff, AiResearch Manufacturing Company

(Contract No. NAS1-6666)

April 1976

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

LANGLEY RESEARCH CENTER, HAMPTON, VIRGINIA 23665

424

1 Report No. NASA TM X-72822	2 Government Accession No	3 Recipient's Catalog No

4 Title and Subtitle	5 Report Date
HYPERSONIC RESEARCH ENGINE/AEROTHERMODYNAMIC INTEGRATION MODEL - EXPERIMENTAL RESULTS Volume II - Mach 6 Performance	April 1976
	6 Performing Organization Code 3745
7 Author(s) Earl H. Andrews, Jr.; Ernest A. Mackley; and Engineering Staff, AiResearch Manufacturing Company	8 Performing Organization Report No
9 Performing Organization Name and Address NASA Langley Research Center Hampton, VA 23665	10 Work Unit No 505-05-41-03
	11 Contract or Grant No NAS1-6666
	13 Type of Report and Period Covered Technical Memorandum
12 Sponsoring Agency Name and Address National Aeronautics and Space Administration Washington, D.C. 20546	14 Sponsoring Agency Code

15 Supplementary Notes

Special technical information release, not planned for formal NASA Publication.

16 Abstract

The NASA Hypersonic Research Engine (HRE) Project was initiated in 1967 for the purpose of advancing the technology of airbreathing propulsion for hypersonic flight. A large component (inlet, combustor, and nozzle) and structures development program was encompassed by the project. The component development program was culminated in 1974 with the tests of a full-scale (18 in. diameter cowl and 87 in. long) HRE concept, designated the Aerothermodynamic Integration Model (AIM), in the NASA Lewis Research Center, Plum Brook Station Hypersonic Tunnel Facility at Mach numbers of 5, 6, and 7. AIM tests descriptions, data results, and analysis results have been previously documented. Four reports document computer program analysis results of the AIM experimental engine performance. Enough information is included in the four reports to enable additional analysis and/or additional or different interpretation of the AIM data. The present report (Volume II) presents computer program results for the Mach 6 performance tests. Program results are contained in three additional volumes that have the following subtitles:

Volume I - Mach 6 Component Integration
Volume III - Mach 7 Component Integration and Performance
Volume IV - Mach 5 Component Integration and Performance

17 Key Words (Suggested by Author(s))	18 Distribution Statement
Propulsion Scramjets Engine Performance Hypersonic Propulsion Hydrogen Fuel	Unclassified - Unlimited

19 Security Classif (of this report)	20 Security Classif (of this page)	21 No of Pages	22 Price*
Unclassified	Unclassified	424	$10.50

*For sale by the National Technical Information Service, Springfield, Virginia 22161

HYPERSONIC RESEARCH ENGINE/AEROTHERMODYNAMIC INTEGRATION MODEL - EXPERIMENTAL RESULTS

Volume II - Mach 6 Performance

Earl H. Andrews, Jr. and Ernest A. Mackley

Langley Research Center

and

Engineering Staff , AiResearch Manufacturing Company

(Contract No. NAS1-6666)

SUMMARY

An extensive aerothermodynamic development program for the purpose of advancing the technology of airbreathing propulsion for hypersonic flight has been conducted by NASA in the form of the Hypersonic Research Engine (HRE) Project. The engine components (inlet, combustor, and nozzle) aerothermodynamic development program culminated in the testing of an engine which integrated these components and allowed assessment of engine performance at Mach numbers of 5, 6, and 7. This engine was termed the Aerothermodynamic Integration Model (AIM) and was a water-cooled, hydrogen-fueled, full-scale configuration of the HRE design concept, 18 inches in diameter at the cowl lip and 87 inches long.

Descriptions of the AIM tests and a computer program used in the engine performance analyses, as well as data results and analyses, have been previously documented. All of the results of the engine performance computer program, including enough information to enable additional analysis or interpretation of the data, are reported in four volumes. Volume I presents Mach 6 component integration results that were obtained with supersonic combustion. During the integration tests, inlet unstart limits were determined for fuel injection from the first stage fuel injectors only and for multi-stage fuel injection. Optimization of the fuel injector combination that would yield the best combustion and engine performance was attempted. Volume II (present report) presents Mach 6 engine performance results during supersonic and subsonic combustion modes. Combustion mode transition was successfully performed, exit surveys made, and effects of altitude, angle of attack, and inlet spike position were determined during these tests. Volume III presents Mach 7 component integration and engine performance results with supersonic combustion modes. Fuel injector optimization was again attempted, exit surveys made, and the effects of low free-stream total temperature, free-stream oxygen content, and angle of attack were studied during these tests. Volume IV presents Mach 5 component integration and engine performance results with supersonic and subsonic

combustion modes. Combustion mode transition was successfully demonstrated, exit surveys made, and effects of free-stream total temperature, free-stream oxygen content, and angle of attack were investigated during these tests.

INTRODUCTION

The NASA Hypersonic Research Engine (HRE) Project was undertaken to design, develop, and construct a hypersonic research ramjet engine for high performance and to flight test the developed concept on the X-15-2A airplane over the speed range from Mach 3 to 8. It should be emphasized that from the beginning the design was specified to be a research ramjet engine to conduct meaningful experiments and was in no sense intended to be a small-scale prototype of a propulsion system for any particular mission.

About one year after the development phase of the HRE program was underway, the X-15 program was phased out; as a result, adjustments to the project plan and scope were necessitated, which were, however, effected without detriment to achievement of the basic project objectives. The result of the adjustment was that ground testing became the major experimental effort for the HRE program. Engine aerothermodynamic components (inlet, combustor, and nozzle) were developed in separate ground-test programs. Results of the development tests are documented in references 1 through 3. Regeneratively cooled engine structures were also included in the ground-testing program. Tests of the hydrogen-cooled engine structure progressed from small panels and problem area components in laboratory setups to wind-tunnel tests at Mach 6.7 of a full-scale, flight-weight engine termed the Structure Assembly Model (SAM). Results of this program, which was completed in May 1971, are reported in reference 4. Culmination of all the HRE development testing was the engine tests of what was termed the Aerothermodynamic Integration Model (AIM). The purpose of the tests of this full-scale, water-cooled, hydrogen-fueled engine was to integrate the aerothermodynamic components and to assess the engine performance at Mach numbers of 5, 6, and 7. Successful tests of the AIM were completed in April 1974.

The AIM employed the HRE design concept of an axisymmetric engine, 18 inches in diameter at the cowl lip and 87 inches long. Versatility was incorporated into the AIM to allow: (1) inlet spike translation for optimum air flow and inlet internal contraction ratio variation; and (2) hydrogen fuel injection for tailored fuel distribution for proper heat release in a diverging combustor, and to change the mode of combustion from supersonic to subsonic or vice versa. The AIM tests are reported in reference 5 and data results of the tests have been analyzed in terms of engine performance by use of a computer program (ref. 6) generated during the HRE program. Results of these analyses are reported in references 7 through 9.

The purpose of the present reports (herein and refs. 10 to 12) is to present experimental engine performance results obtained from computer program analyses of the test data. These results contain the free-stream conditions, pressure distributions, fuel injection configuration and rate, etc., that should enable additional analysis or interpretation of results other than those previously reported. It

should be noted that all units are in U.S. Customary Units because the data results from the HRE contracts, which were initiated in May 1965 with a follow-on effort in February 1967, were under that system. Because of the cost that would have been incurred if the contractors had been required to change to the metric system, the U.S. Customary Units were retained through the HRE contractual effort; this procedure is consistent with the guidelines for conversion established by NASA.

SYMBOLS

All units are in U.S. Customary Units because of the reason noted above.

A	area, $ft.^2$
M	Mach number
P or p	pressure, psia
r	radius, in.
R_{CL}	cowl lip radius at 12^o tangent point (see table 3), in.
x	longitudinal distance from inlet spike virtual tip (see table 3), in.
x_{CL}	longitudinal distance from inlet spike virtual tip to the cowl lip 12^o tangent point (see table 3), in.
Δx	longitudinal distance inlet centerbody moved from inlet physical close-off, in.
$\Delta\Delta x$	difference between an actual x_{CL} value and the Mach 6 x_{CL} value of 34.884 in., in.
T	temperature, ^oR
α	angle of attack, deg.
ϕ	fuel equivalence ratio; value of unity is for stoichiometric combustion (subscript symbols or notations, such as ϕ_{1A} or ER1A, represent the values for the designated fuel injector (e.g., 1A), ER0A is the sum of all ϕ-values).

Subscripts:

0	free stream
ref.	reference condition
th	throat
T	total

APPARATUS

Experimental Tests

Experimental tests of the HRE/AIM were conducted in the Plum Brook Hypersonic Tunnel Facility (HTF) (figs. 1(a) and 1(b)) at nominal Mach numbers of 5, 6, and 7. The AIM is shown partially installed in the HTF in the photographs of figures 1(c) and 1(d). During the tests the engine was nearly completely enshrouded except for an 11-inch gap between the facility nozzle exit and the front of the shroud as depicted in the schematic of figure 1(e). This test configuration was suggested by results of a subscale tunnel starting investigation reported in reference 13.

A description of the facility and the results of calibration tests are presented in reference 14. The test facility used an induction-heated, drilled-core graphite storage bed to raise the temperature of nitrogen to a nominal 4960° R at a maximum design pressure of 1200 psia. The nitrogen was mixed with ambient-temperature oxygen to produce synthetic air. Diluent nitrogen was added with the oxygen in the mixture at tunnel Mach numbers below 7 to control free-stream total temperature and to supply the correct weight flow. Because of facility heater deterioration and a lack of time to implement necessary repairs, true temperature simulation of 3700° R at Mach 7 was not achieved; a maximum temperature of about 3100° R was obtained.

The original test plan is summarized in table 1. Because of testing problems and limitations in facility schedule, the test plan was altered to provide a maximum of data to meet the test objectives. Details of the AIM tests are described in reference 5. General test conditions, results, and remarks of the AIM tests were tabulated in references 5 and 9 and are presented herein as table 2. All tests (reading numbers in second column) are listed including the tests that were aborted because of tunnel starting or other problems. Run numbers were assigned to AIM reading numbers or groups of AIM reading numbers with the same test objective (some readings represent zero success, partial success, or are reruns of others) to provide a means for a cross-check with the original plan.

Model

The HRE/AIM was a full-scale (18 inches in diameter at the cowl and 87 inches long), water-cooled, hydrogen-fueled research engine. Details of the design and fabrication of the AIM have been reported in references 16 through 29. The design is described generally in references 5 and 9, and some difficulties encountered with the AIM during the tests are discussed in reference 5.

A schematic of the AIM is presented in figure 2 and the coordinates are listed in table 3. The AIM incorporated a mixed compression inlet with a translating spike that enabled the close-off of the engine (an early HRE program

requirement). The inlet was designed for spike translation to the most open position for Mach 4 to 6 operation with spillage occurring up to Mach 6. At Mach 6 "shock-on-lip" occurred, and from Mach 6 to 8 the spike was designed to translate to maintain shock-on-lip over this Mach number range. An "upsloping throat" was incorporated in the inlet which enabled the inlet to not only maintain shock-on-lip with spike translation for Mach 6 to 8, but also to have increased inlet contraction ratio with increased Mach number. The combustor was designed with diverging walls and the area distribution is shown in figure 3(a) with fuel injector locations indicated. Figure 3(b) presents a sketch of the combustor with the locations of the staged fuel injectors and two sets of ignitors indicated (a third set of ignitors planned for the outerbody at an x-station of 54.38 inches was not installed). The set of ignitors at an x-station of 42.0 inches malfunctioned and use was discontinued (see fig. 3(b)) about midway in the Mach 6 test program (see discussion in ref. 5). Injectors 1A, 1B, 1C, 4, 2A, and 2C were designed to allow optimum distribution of the fuel in the combustor to obtain a fuel equivalence ratio, ϕ, of unity during the supersonic combustion mode. During the supersonic combustion mode, it was desired to inject the maximum amount of fuel from the first-stage injectors (1A and 1B) without unstarting the inlet; all of the fuel was designed to be injected from injectors 1A and 1B at Mach 8. Injectors 3A and 3B were designed for use in the subsonic combustion mode. The locations are tabulated in figure 3(b) for the designed Mach 6 inlet operating position; cowl lip positions other than the Mach 6 position (because of spike translation) result in different x-station values for the injectors and ignitors on the outer wall and also for injector 3B. These changes are accounted for in the performance results presented herein.

Instrumentation

Planned instrumentation for the AIM is documented in reference 15. All of the instrumentation planned was not used because of facility instrumentation recording channel limitations or damages to instrumentation in inaccessible places during the AIM final assembly or during AIM repairs at the test site. A list of all planned instrumentation is presented in table 4 (obtained from ref. 5) with notations indicating the items not installed or damaged, the recording channel numbers for each item used, and the ranges of the pressure transducers or thermocouples.

Method of Calculation

A computer program that incorporated methods described in reference 15 was used in reducing the data from the AIM tests to engineering units. Listings of this program were checked for accuracy and determination of steady-state conditions. Times of interest were selected from each run and the information from the engineering units computer program was used in a performance analysis computer program which incorporated methods described in reference 6. After the erroneous surface pressures were eliminated, the remaining pressures at each station were averaged by the performance computer program which then performed surface-pressure integration by linear interpolation and determined the skin-friction coefficients. Chemical equilibria of the synthetic air and fuel-air mixtures were calculated by the program using methods described in reference 30.

Description of Performance Program Methods

General.- Several methods were used to establish validity of critical parameters, such as the wind tunnel Mach number. The first method used curves generated from instrumentation rakes installed during calibration of the wind tunnel. The second method used measured values of wind tunnel total pressure and temperature, and pitot pressure at the spike tip along with real-gas, normal-shock solution to calculate the wind tunnel Mach number. The third method used measured values of wind tunnel total temperature, spike-tip pitot pressure, and spike cone surface pressure, along with the real-gas, normal-and conical-shock solutions, to calculate the wind tunnel Mach number. Calculations made utilizing each of the three methods indicated good agreement. After confidence was established in the three methods, the use of the third method was discontinued, since it required excessive computer time. Additional information concerning tunnel Mach number determination is contained in reference 9.

The conditions at the inlet throat were determined by computing the momentum and total enthalpy from the pressure forces and accounting for friction and heat losses incurred on the inlet spike and the internal surfaces. The inlet mass flow ratio and additive drag were determined from theoretical calculations (ref. 31). Pressures used in these calculations were obtained as follows: (1) for conditions where inlet start was obtained ($M_{th} > 1$), the calculated mass-momentum-average static pressure was used, and the measured static pressures at the throat were not used; and (2) for conditions where inlet unstart was experienced ($M_{th} \leq 1$), the average of the measured static pressures at the throat was used with the Mach number constrained to unity to calculate spillage and additive drag.

For both cases above, the flow was analytically expanded (isentropically) from the inlet throat conditions to the freestream static pressure in order to determine the hypothetical static enthalpy and associated velocity which are required to compute the inlet kinetic energy efficiency and the inlet process efficiency (as required under the contract statement of work). Also the flow was analytically compressed (isentropically) from the inlet throat conditions until the calculated total enthalpy matched the known total enthalpy after heat loss. For a started inlet, a side calculation was made by isentropically expanding the flow to an area which was arbitrarily set 10 percent larger than the throat area (for flow stability). At this point, the flow was passed through a normal shock. The limiting subsonic pressure recovery for the inlet and the corresponding kinetic energy and process efficiencies were then determined from conditions downstream of the normal shock. These inlet performance parameters were considered of interest as indicators of the overall inlet performance and of flow conditions prior to inlet unstart.

Two methods were used to calculate conditions at the combustor stations: (1) up to the first station where fuel was injected, the mass-momentum-averaged static pressure that satisfied the state, continuity, momentum, and energy equations was calculated; and (2) at stations downstream of the first fuel injector the average of the measured innerbody and outerbody pressures was used, and the combustor efficiency was calculated to satisfy the conservation equations. For these methods it was assumed that the flow area equals the geometric duct

area (no flow separation). The amount of hydrogen required to react in order to satisfy the measured static pressure, the duct area, the heat loss, and the conservation equations is computed by the program. Of the total hydrogen injected or present in the flow at a given station, the amount which reacts has been named "real" hydrogen and is used in the equilibrium chemistry process being completed. The hydrogen which is not reacting has been named "inert" hydrogen. The concept of real and inert hydrogen and the station-wise conversion from inert to real is simply a bookkeeping procedure in the program which simulates or "models" the mixing process. The inert hydrogen is assumed to have the properties of an inert gas, not to react with other species, and not to dissociate.

The combustor throat was defined as the point of minimum-flow area between the struts in the subsonic combustion mode and at the strut exit plane in the supersonic combustion mode. When the computed one-dimensional Mach number at the assumed combustor exit was found to be less than 0.95, the computation was considered to improperly represent the subsonic combustor flow situation in that the flow must have reached a sonic point further downstream. With the area increasing added combustion (heat release) downstream of the assumed combustor exit station is implied. Therefore, a side calculation was made of the combustor efficiency required to produce sonic velocity at the assumed combustor exit station, as if this added heat release occurred prior to the assumed combustor exit station. For this condition, the performance program printout shows results under the heading SONIC THROAT (e.g., reading 94, time 150.342 sec).

The regeneratively cooled combustor performance ("COMBUSTOR REGEN" in the performance program printout) was simulated by recalculating the total enthalpy at the combustor exit as the sum of the free-stream enthalpy of the synthetic air, the enthalpy of the hydrogen fuel at 50^{0}R, and the absolute value of the heat loss through all the engine surfaces wetted by the internal flow stream. Using this total enthalpy, the stream total pressure, and the same combustion efficiency, the combustor exit static-state properties were also computed.

Nozzle performance was obtained by isentropically expanding the flow from the actual and regeneratively cooled combustor exits to the nozzle exit area and to ambient pressure ("NOZZLE AE" and "NOZZLE PO" in the performance program printout). The flow was then isentropically expanded from the actual combustor throat to those nozzle stations representing the locations of pressure taps, and the local skin-friction coefficients were calculated using the Spalding-Chi correlation. The nozzle vacuum stream thrust coefficient was also computed. This coefficient is arbitrarily defined in previous HRE documents (e.g., refs. 3 and 15) as the ratio of the actual nozzle exit total momentum (stream thrust) divided by the theoretical nozzle exit total momentum where the flow was isentropically expanded from the combustor exit conditions to the nozzle exit area (512.389 in^2). The actual nozzle exit total momentum was determined by taking the combustor exit total momentum and adding (or subtracting) the pressure force, the friction force, and one-half of the calculated drag force (one-half of strut assumed to be charged to the nozzle component). The hypothetical static enthalpy resulting from the computed isentropic expansion from the combustor exit conditions to the free-stream static pressure was used to calculate the nozzle kinetic energy and process efficiencies.

Side calculations were made of a fictitious stagnation combustion process (constant pressure and zero velocity) with 100 percent combustion efficiency and no loss to the walls (denoted in the performance program printout as "FICTIVE COMBUSTOR"), followed by an isentropic expansion to ambient pressure to obtain the combustor effectiveness. Also to obtain the combustor effectiveness, the flow at the combustor exit was expanded to free-stream static pressure and the total momentum at this pressure was determined. The combustor effectiveness (ref. 15) is then the change in total momentum for the actual combustor process from the combustor entrance condition to the expanded (free-stream static pressure) condition divided by the change in total momentum for the fictitious process mentioned above from the combustor entrance condition to the expanded (free-stream static pressure) condition. Side calculations were also made of a fictitious nozzle to determine the static and total conditions ("FICTIVE NOZZLE" in the performance program printout) required to match the actual vacuum specific impulse at the nozzle exit.

Calculation of cooling load distribution.- For the AIM tests, the heat loss distribution was determined from the differences between the skin thermocouples inbedded in the engine surfaces and the cooling water temperatures. Standard heat-transfer equations were used to obtain local heat losses. These losses were then adjusted linearly with the overall heat loss as measured by the overall water temperature rise. The detailed equations and procedures used for these computations are presented in reference 9.

Tare forces.- Purge nitrogen was injected in the AIM cavity between the non-metric "windshield" shroud and the metric outerbody to assure that hot tunnel gases did not enter into this cavity. This method produced a large tare force which was of the same order of magnitude as the engine net thrust. An effort was made to reduce and even control the tare force by suitable control of the pressures in two parts of the cavity. This tare-force control concept was, however, not achieved. Since the thrust is considered the most important measurement in evaluating the engine performance, special tare-force calibration tests were made and the results carefully correlated in order to determine the correction for the measured thrust. The method and procedures are described in detail in references 5 and 9.

External drag.- The external drag was calculated from the summation of pressure and friction forces acting on the external metric surfaces of the AIM. The method and procedures are described in reference 9.

Strut force calculation.- The performance program was originally programmed to calculate strut force based on a theoretical calculation, assuming uniform flow ahead of the strut. This force should be a drag term since, theoretically, pressures downstream of the maximum strut blockage should be lower than upstream. However, test data indicate that this is only true with subsonic combustion. Upon examination of the test data, it appeared that measured static pressures between struts on both the inner and outer walls (there were no measurements along the strut surfaces) could be used to represent the forces occurring on the strut surface. Thus, a pressure integral was used to determine the strut force and a calculation was also made for strut base pressure as discussed in reference 9.

Performance correction for regeneratively cooled system.- The AIM incorporated a water-cooled jacket in which heat was rejected and not recovered. In order to compensate for this heat loss, hydrogen fuel was heated up to 1500° R to simulate a regeneratively cooled system. The deficiency of energy in the system in terms of theoretical energy release was less than 10 percent in all cases.

In order to correct this deficiency, the performance computer program (ref. 6) incorporated a side calculation in which the energy deficiency, because of the heat loss through internal surfaces, was added to the stream at the combustor exit with no total pressure change. The flow was then expanded to the nozzle exit with measured nozzle efficiency. The differences between the heat added to fuel and the internal cooling loss are presented for several tests in reference 9 as table 6.6-1.

Performance correction for inlet total temperature.- Because of the facility heater deterioration, the true temperature simulation of 3700° R at Mach 7 was not achieved (the test Mach number was generally about 7.25 requiring a simulation temperature of about 3960° R). It is known that the effect of decreasing total temperature is to increase the engine performance. Therefore, it is necessary to correct the measured performance for Mach 7 (ref. 11) to properly account for deviations in test conditions. Theoretical calculations indicate that, at Mach 7, a decrease of 560° R would increase the thrust coefficient by 5 percent and the specific impulse by 3.5 percent. The accomplishment of this correction in the performance computer program (ref. 6) employed the methods discussed in reference 9.

Determination of tunnel gas composition.- The oxygen-to-nitrogen ratio was determined from the flow measurements of oxygen, diluent nitrogen, and nitrogen entering the storage heater, and checked by gas samples taken through two aspirating thermocouple probes 180° apart in the facility nozzle entrance prior to each run. The samples were collected in high-pressure bottles and later analyzed on a mass-spectrometer. The measured compositions for each run are presented in reference 9 as table 6.8-1. The one-dimensional performance computer program (ref. 6) used only the N_2 and O_2 values.

RESULTS

Selected points of interest of the HRE/AIM test data have been analyzed by use of the one-dimensional performance analysis computer program (ref. 6). The amount of material generated requires four volumes. Mach 6 engine performance results are presented herein. Mach 6 component integration results, Mach 7 component integration and engine performance results, and Mach 5 component integration and engine performance results are presented in references 10 to 12, respectively. All of these results were used in references 7 through 9 in the discussion of the results of the AIM test program.

Selected Test Points for Performance Analysis

Details of the AIM tests were discussed in reference 5 which included a list of all the HRE/AIM tests; this list is contained herein as table 1 (included in each volume). The individual AIM tests were recorded as consecutive reading numbers that extended through number 97 for a total operation time of 112 minutes with 41.5 minutes of combustor operations. About 60 successful tests are noted in the first column of table 2.

Reference 5 documented the fuel injection schedules, both planned and measured, for the successful tests. The measured fuel injection schedules for the successful Mach 6 engine performance tests are contained herein for convenience in figure 4. Such plots were reviewed and points (run time) of interest were selected for performance analysis. The selected points were listed in reference 9 and are included in table 5(a) for the results presented in reference 10, table 5(b) for the results presented herein, and tables 5(c) and 5(d) for the results presented in references 11 and 12, respectively, where the times correspond to the abscissa in figure 4. The first column of table 5 indicates the page number of the initial page of the data for a given test point (specific time of a reading number). Table 5 indicates the general test conditions and fuel injection equivalence ratios, ϕ, for the first-, second-, and third stage injectors and the accumulative ϕ-value. Also, the use of ignitors is indicated and the general purpose of the test is noted.

Vagaries in the test program that should be noted (table 5, last column) are:

(1) Fuel equivalence ratio values, ϕ, in table 5 for reading 93 are lower than the values indicated by the fuel injection schedule (fig. 4(a) of ref. 12). In preparation for the performance analysis, the tunnel measured oxygen content was found to be about 34 percent instead of the standard 21 percent; therefore, the fuel equivalence ratios were corrected to account for the difference in the available oxygen for combustion.

(2) Time 235 seconds in reading 90 is for an inlet unstart condition. With an unstart, the captured mass flow is, of course, greatly decreased, and since the fuel flow rate is still high, the ϕ-value would be high as indicated, therefore this time is not very meaningful.

(3) At Mach 7 the agreement between computed thrust (a function of $\int pda$) and measured thrust was not nearly as favorable as experienced for Mach 6. Examination of the surface static pressure distributions on the outer combustor surface in the vicinity of the pressure rise indicated some pressure instrumentation to be faulty. For reading 89, more reasonable values were substituted for the measured pressures and the performance recomputed. The recomputation was performed for two different times, 316.47 and 327.27 seconds (see table 5(c)), and the results indicate a much more favorable agreement between the computed and measured thrust. The channel numbers in which new pressure values were substituted are noted on the first page of the results for these two times. A more detailed discussion of this exercise is contained in reference 9 (section 7.7.2 Mach 7 Performance).

(4) Times 264.04, 274.84, and 275.74 seconds of reading 96 had a fuel flow measurement malfunction that indicated no fuel flow from injector 1B. Injector 1B manifold pressure, however, indicated flow to exist at pressure levels about equal to planned pressure levels (ϕ-values about the same as for injector 1A). The performance calculations for these times of reading 96 erroneously used only fuel flow from injector 1A.

(5) At time 313.54 seconds, also of reading 96, the test chamber pressure was noted to be high, thus yielding unrealistically high pressures on the AIM nozzle shroud and plug that would, of course, contribute erroneously to increased engine thrust.

Description of Performance Computer Results

The selected points listed in table 5 were analyzed using the performance computer program described in reference 6. As noted in the Method of Computation section, the AIM test data were reduced to engineering units and reviewed for erroneous data. Such data were "coded out" in the performance computer program. Table 6 indicates the channels that were coded out. The COXX indicates the code outs for a reading number, e.g., for reading 33, C033 is indicated. Channels that are coded out are listed adjacent to the notation KODSEL, e.g., for reading 33 the first and last of 85 coded out channels are 60 and 399, respectively. The locations and type of measurement for the listed channels may be determined by referring to table 4.

Several points (run time) of interest were selected for each run as indicated in table 5. The page numbers indicated in the first column of table 5 are output listings of the performance computer program (ref. 6). For each time of interest there are seven or eight pages of computer output listings. On each of these pages a standard heading exists: READING number (test number); BLOCK number (numbered sequentially and corresponding to recording times of test data); TIME (of data recording, seconds); MACH number (in wind tunnel); PT (total pressure in wind tunnel, psia); TT (total temperature in wind tunnel, ^{o}R); and PAGE number.

Station flow parameters.- A summary of flow parameters at each calculation station in the AIM is contained on pages 1, 2, and 3. Each station is headed by a station designator (i.e., WIND TUNNEL, INLET THROAT, COMBUSTOR, etc.), followed by three integers (the zero following the combustor designator is meaningless). The first integer denotes the station number, the second denotes the combustor station, and the third denotes the number of interations required to converge on a solution. The third integer may assume values between 0-21, 100-121, and 200-221. A value of the third integer equal to 21 denotes that the mass flow was too great or the flow area too small to obtain a solution, 121 denotes that the solution for total conditions did not converge in 21 interations and 200-221 denotes that the mass flow was too small or the flow area too large to obtain a solution. When both solutions for static and total conditions have converged, the third integer may assume the values 1-20 or 101-120 depending upon which solution (static or total) required the larger number of interations. Columns 2-8 have two rows of values for each station; total and static conditions in first and second rows, respectively.

Most of the station designators are self-explanatory. The first appearance of the designators WIND TUNNEL and SPIKE TIP NS (NS = NORMAL SHOCK) reports conditions in wind tunnel and upstream of the spike tip based on a wind tunnel Mach number determined from calibration runs. The second appearance of these designators reports these conditions based on a wind-tunnel Mach number calculated from the total and pitot pressures and the total temperature of the synthetic air applied to the normal shock equations. The designators INLET UPNRSK and INLET DNNRSK denote conditions upstream and downstream of a normal shock positioned at a fictitious flow area 1.10 times the flow area at the inlet throat. The designator COMBUSTOR REGEN denotes, for cases with fuel flow, conditions at the combustor throat simulating a regeneratively cooled ramjet. In some cases (e.g., reading 94 time 150.342 sec) the designator SONIC THROAT appears ahead of the COMBUSTOR REGEN. This denotes the results discussed in section entitled "Description of Performance Program Methods." NOZZLE AE and NOZZLE PO report conditions when the flow is expanded isentropically to the nozzle exit area and to the wind-tunnel static pressure, respectively. NOZZLE AE REGEN and NOZZLE PO REGEN denote, for cases with fuel flow, conditions at the nozzle exit simulating a regeneratively cooled ramjet. FICTIVE COMBUSTOR denotes stagnation combustion conditions (zero velocity and constant pressure) with combustor efficiency equal to unity. FICTIVE NOZZLE reports conditions required to match the actual momentum and nozzle exit area.

Definition and units of parameters in the SUMMARY REPORT, pages 1-3 in the computer listings, are listed below:

P - pressure, psia
T - temperature, ^{o}R
H - enthalpy*, Btu/lb_m
GAMMA - specific heat ratio
MOLWT - molecular weight
SONV - conic velocity, ft/sec
MACH - Mach number
VEL - flow velocity, ft/sec
S - entropy, Btu/lb_m-^{o}R

W/A - flow rate per unit area, lb_m/sq in
W - flow rate, lb_m/sec
A/AC - mass flow ratio
MØMTM - flow momentum, lb_f
Q - dynamic pressure, lb_f/sq in
IVAC - vacuum specific impulse, lb_f-sec/lb_m
PHI - equivalence ratio (see discussion in Ramjet Performance section)
ETAC - combustor efficiency

---

*Two values were reported. The first value (column 4) was the JANNAF-based enthalpy. The value in parentheses (column 5) was the enthalpy potential or the sensible enthalpy based on the equation

$$\sum_i \int_0^T C_{p,i}dT \quad \sigma_i(T) = \sum_i H_{f,i}^{298} + \int_{298}^{T} C_{p,i}dT \quad \sigma_i(T)$$

$$- \sum_i H_{f,i}^{298} + \int_{298}^{300} C_{p,i}dT \quad \sigma_i(T) + \sum_i \int_0^{300} C_{p,i}dT \quad \sigma_i(T)$$

where: $C_{p,i}$ is specific heat at constant pressure, Btu/lb_m - ^{o}R, and $\sigma_i(T)$ is the mass fraction of the specie i as a function of temperature and H_f is fuel enthalpy.

Cooling and surface-pressure parameters.- Surface pressures, cumulative surface-pressure integrals, cumulative cooling losses, cumulative surface area, and pressure ratios for axial distances from the AIM virtual spike tip are listed on pages 4 and 5.

Definitions and units of the parameters are as follows:

XABS - axial distance from virtual spike tip, in
P-IB - surface pressure on innerbody, psia
P-ØB - pressure on cowl inner surface, psia
PDA - cumulative surface-pressure integral, $\int_0^{X_{ABS}} P dA$, lb_f
QØX - cumulative total cooling loss, Btu/sec
Q-IB - cumulative cooling loss from innerbody, Btu/sec
Q-ØB - cumulative cooling loss from outerbody, Btu/sec
CAWALL - cumulative surface area, sq in
P-IB/PSØ - innerbody static to wind-tunnel static-pressure ratio
P-IB/PTØ - innerbody static to wind-tunnel total-pressure ratio
PØB/PSØ - outerbody surface static to wind-tunnel static-pressure ratio
PØB/PTØ - outerbody surface static to wind-tunnel total-pressure ratio

Drag and heat-transfer coefficients.- Longitudinal values of drag force and drag and heat-transfer coefficients are listed on page 6 (for some cases on page 6 and 7). Definition and units of the parameters are as follows:

X - axial distance from spike virtual tip, in
DDRAG - incremental frictional drag force, lf_f
CDRAG - cumulative frictional drag force, lb_f
C_F - friction-drag coefficient
HC - heat-transfer coefficient, Btu/(sec-sq ft-^oR)

Ramjet performance.- AIM performance parameters and pertinent information are contained on page 7 (page 8 for some cases). The performance parameters are generally self-explanatory; detailed discussion about the methods of computation are presented in references 6 and 9. Parameters listed below STATIONS are presented since they are related (except for the inlet throat) to the cowl leading-edge station. The NOMINAL COWL LEADING EDGE refers to the x_{CL} (table 3) value for the Mach 6 design operating position. SPIKE TRANSLATION is the recorded distance between the nominal and the actual x_{CL} value (this distance is designated as $\Delta\Delta x$ in symbols and used in figure 3(a)); all dimensions other than those for the inlet spike are corrected by this amount.

The fuel injectors and their corrected stations in inches are shown. A letter in the VALVE column indicates the injectors that were in use during the respective time. Table 5 indicates the general fuel equivalence ratio values for the various injector stages. The actual fuel equivalence ratio, however, for each injector can be determined by noting the step increases in the PHI column on the output, pages 1-3, for the respective time (ignore 0.01 or 0.02 changes); the step difference at the combustor station corresponding to the indicated injector station is the ϕ-value for the respective injector.

SUMMARY OF TESTS

The Hypersonic Research Engine/Aerothermodynamic Integration Model was tested in the NASA Hypersonic Tunnel Facility at the Plum Brook Station of the NASA Lewis Research Center. Synthetic air (heated nitrogen with proper amount of oxygen added) was delivered by the facility at nominal Mach numbers of 5, 6, and 7. The Mach 5 and 6 tests were conducted at true air temperature while Mach 7 tests were conducted at Mach 6 temperature (3000^{o} R) because of heater deficiency. Changes in total temperature and instream oxygen content at Mach 5 and 7 were also explored. The hydrogen fuel was heated up to 1500^{o} R prior to injection to simulate a regeneratively cooled system.

The engine testing was completed with an accumulated actual running time of about 112 minutes with 41.5 minutes of combustor operation. The important achievements realized from this test program which advanced the state-of-the-art in hypersonic propulsion were discussed in detail in reference 9 and are:

1. Realistic engine performance levels for hypersonic flight were obtained from Mach 5 to 7.

Test Mach No.	Equivalence Ratio	Internal Thrust Coefficient	Internal Specific Impulse
5.1	1.0	0.910	2740
6.0	1.0	0.735	2360
7.25	1.0	0.570	2170

2. Engine inlet performance agreed well with theoretical prediction. Combustor efficiency of 95 percent was achieved. Nozzle vacuum thrust coefficient was lower than predicted.

3. The interaction effects in staged fuel injection were very important in achieving auto-ignition, high combustor efficiency, and overall performance. High supersonic combustor efficiency in a diverging duct was difficult to achieve. The strong stage interaction effects discovered during these tests may be used to great advantage in future designs.

4. The "transonic combustion" or "mixed combustion mode" was the most efficient heat addition process in the range of Mach numbers and temperatures tested in this program.

5. The effects of ignitors, altitudes, spike translation, fuel schedules, angle of attack, step and struts, inlet gas composition, inlet total temperature, and component interactions were investigated and correlated.

6. Stable subsonic and supersonic combustion and convertibility over a range of fuel equivalence ratios at Mach 5 and 6 was demonstrated.

7. The overall cooling load and its distribution as compared with theoretical prediction was determined.

8. Experience was acquired in free jet testing in a ground test facility with large model blockage and combustion.

REFERENCES

1. Engineering Staff: Hypersonic Research Engine Project. Phase IIA - Inlet Program. Terminal Summary Report. AP-69-4883 (Contract No. NAS1-6666), AiResearch Manufacturing Co., Mar. 27, 1969. (Available as NASA CR-66797.)

2. Engineering Staff: Hypersonic Research Engine Project. Phase II - Combustor Program. Final Technical Data Report. AP-70-6504 (Contract No. NAS1-6666), AiResearch Manufacturing Co., Mar. 23, 1970. (Available as NASA CR-66932.)

3. Engineering Staff: Hypersonic Research Engine Project. Phase IIA - Nozzle Program. Terminal Summary Report. AP-68-4451 (Contract No. NAS1-6666), AiResearch Manufacturing Co., Dec. 17, 1968. (Available as NASA CR-101532.)

4. Engineering Staff: Hypersonic Research Engine Project. Phase II - Structures and Cooling Development Program. Final Technical Data Report. AP-72-8237 (Contract No. NAS1-6666), AiResearch Manufacturing Co., May 18, 1972. (Available as NASA CR-112087.)

5. Engineering Staff: Hypersonic Research Engine Project. Phase II - Aerothermodynamic Integration Model. Test Report. AP-74-10784 (Contract No. NAS1-6666), AiResearch Manufacturing Co., May 19, 1975. (Available as NASA CR-132655.)

6. Engineering Staff: Hypersonic Research Engine Project. Phase II - Aerothermodynamic Integration Model. Data Reduction Computer Program. AP-75-11502 (Contract No. NAS1-6666), AiResearch Manufacturing Co., May 16, 1975. (Available as NASA CR-132656.)

7. Engineering Staff: Hypersonic Research Engine Project. Phase II - Aerothermodynamic Integration Model. Some Combustor Test Results. AP-74-10818 (Contract No. NAS1-6666), AiResearch Manufacturing Co., Sept. 26, 1974. (Available as NASA CR-132525.)

8. Engineering Staff: Hypersonic Research Engine Project. Phase II - Preliminary Report on the Performance of the HRE/AIM at Mach 6. AP-74-10951 (Contract No. NAS1-6666), AiResearch Manufacturing Co., Nov. 6, 1974. (Available as NASA CR-132538.)

9. Engineering Staff: Hypersonic Research Engine Project. Phase II - Aerothermodynamic Integration Model Development. Final Technical Data Report. AP-75-11133 (Contract No. NAS1-6666), AiResearch Manufacturing Co., May 19, 1975. (Available as NASA CR-132654.)

10. Andrews, Earl H., Jr.; Mackley, Ernest A.; and Engineering Staff , AiResearch Manufacturing Co. (Contract No. NAS1-6666): Hypersonic Research Engine/Aerothermodynamic Integration Model - Experimental Results. Vol. I, Mach 6 Component Integration. NASA TM X-72821, 1976.

11. Andrews, Earl H., Jr.; Mackley, Ernest A.; and Engineering Staff, AiResearch Manufacturing Co. (Contract No. NAS1-6666): Hypersonic Research Engine/ Aerothermodynamic Integration Model - Experimental Results. Vol. III, Mach 7 Component Integration and Performance. NASA TM X-72823, 1976.

12. Andrews, Earl H., Jr.; Mackley, Ernest A.; and Engineering Staff, AiResearch Manufacturing Co. (Contract No. NAS1-6666): Hypersonic Research Engine/ Aerothermodynamic Integration Model - Experimental Results. Vol. IV, Mach 5 Component Integration and Performance. NASA TM X-72824, 1976.

13. Molloy, John K.; Mackley, Ernest A.; and Keyes, J. Wayne: Effect of Diffusers, Shrouds, and Mass Injection on the Starting and Operating Characteristics of a Mach 5 Free Jet Tunnel. NASA TN D-6377, 1971.

14. Cullom, Richard R.; and Lezberg, Erwin A.: Calibration of Lewis Hypersonic Tunnel Facility at Mach 5, 6, and 7. NASA TN D-7100, 1972.

15. Engineering Staff: Hypersonic Research Engine Project. Phase II - Aerothermodynamic Integration Model. Test Plan. AP-71-7877 (Contract No. NAS1-6666), AiResearch Manufacturing Co., May 26, 1972. (Available as NASA CR-132497.)

16. Engineering Staff: Hypersonic Research Engine Project. Phase IIA - Boilerplate Engine Development. First Interim Technical Data Report. AP-68-3895 (Contract No. NAS1-6666), AiResearch Manufacturing Co., July 9, 1968. (Available as NASA CR-66988.)

17. Engineering Staff: Hypersonic Research Engine Project. Phase IIA - Boilerplate Engine Development. Second Interim Technical Data Report. AP-68-4285 (Contract No. NAS1-6666), AiResearch Manufacturing Co., Oct. 11, 1968. (Available as NASA CR-66989.)

18. Engineering Staff: Hypersonic Research Engine Project. Phase IIA - Boilerplate Engine Development. Third Interim Technical Data Report. AP-69-4674 (Contract No. NAS1-6666), AiResearch Manufacturing Co., Jan. 24, 1969. (Available as NASA CR-66990.)

19. Engineering Staff: Hypersonic Research Engine Project. Phase IIA - Aerothermodynamic Integration Model Development. Fourth Interim Technical Data Report. AP-69-4932 (Contract No. NAS1-6666), AiResearch Manufacturing Co., April 15, 1969. (Available as NASA CR-66993.)

20. Engineering Staff: Hypersonic Research Engine Project. Phase IIA - Aerothermodynamic Integration Model Development. Fifth Interim Technical Data Report. AP-69-5298 (Contract No. NAS1-6666), AiResearch Manufacturing Co., July 8, 1969. (Available as NASA CR-66991.)

21. Engineering Staff: Hypersonic Research Engine Project. Phase IIA - Aerothermodynamic Integration Model Development. Sixth Interim Technical Data Report. AP-69-5572 (Contract No. NAS1-6666), AiResearch Manufacturing Co., Oct. 14, 1969. (Available as NASA CR-66992.)

22. Engineering Staff: Hypersonic Research Engine Project. Phase II - Aerothermodynamic Integration Model Development. Seventh Interim Technical Data Report. AP-69-5899 (Contract No. NAS1-6666), AiResearch Manufacturing Co., Jan. 16, 1970. (Available as NASA CR-66985.)

23. Engineering Staff: Hypersonic Research Engine Project. Phase II - Aerothermodynamic Integration Model Development. Eighth Interim Technical Data Report. AP-70-6397 (Contract No. NAS1-6666), AiResearch Manufacturing Co., April 24, 1970. (Available as NASA CR-66984.)

24. Engineering Staff: Hypersonic Research Engine Project. Phase II - Aerothermodynamic Integration Model Development. Tenth Interim Technical Data Report. AP-70-6800 (Contract No. NAS1-6666), AiResearch Manufacturing Co., Oct. 15, 1970. (Available as NASA CR-112058.)

25. Engineering Staff: Hypersonic Research Engine Project. Phase II - Aerothermodynamic Integration Model Development. Eleventh Interim Technical Data Report. AP-70-7035 (Contract No. NAS1-6666), AiResearch Manufacturing Co., Jan. 6, 1971. (Available as NASA CR-112059.)

26. Engineering Staff: Hypersonic Research Engine Project. Phase II - Aerothermodynamic Integration Model Development. Twelfth Interim Technical Data Report. AP-71-7279 (Contract No. NAS1-6666), AiResearch Manufacturing Co., March 30, 1971. (Available as NASA CR-112060.)

27. Engineering Staff: Hypersonic Research Engine Project. Phase II - Aerothermodynamic Integration Model Development. Seventeenth Interim Technical Data Report. AP-72-8542 (Contract No. NAS1-6666), AiResearch Manufacturing Co., June 27, 1972. (Available as NASA CR-132585.)

28. Engineering Staff: Hypersonic Research Engine Project. Phase II - Aerothermodynamic Integration Model Development. Nineteenth Interim Technical Data Report. AP-72-8916 (Contract No. NAS1-6666), AiResearch Manufacturing Co., Dec. 9, 1972. (Available as NASA CR-132541.)

29. Engineering Staff: Hypersonic Research Engine Project. Phase II - Aerothermodynamic Integration Model Development. Twentieth Interim Technical Data Report. AP-73-9154 (Contract No. NAS1-6666), AiResearch Manufacturing Co., March 9, 1973. (Available as NASA CR-132540.)

30. Gordon, Sanford; and McBride, Bonnie J.: Computer Program for Calculation of Complex Chemical Equilibrium Compositions, Rocket Performance, Incident and Reflected Shocks, and Chapman-Jouget Detonations. NASA SP-273, 1971.

31. Andrews, Earl H., Jr.; Russell, James W.; Mackley, Ernest A.; and Simmonds, Ann L.: An Inlet Analysis for the NASA Hypersonic Research Engine Aerothermodynamic Integration Model. NASA TMX-3038, 1974.

Table 1. - Summary of planned HRE/AIM wind tunnel tests.

(obtained from ref. 9 and 15)

RUN	M_0	PTO, PSIA	TTO, °R	α	FUEL SYSTEMS	FUEL SCHED.	INLET ΔX, IN	COMBUSTION MODE	RUN TYPE AND PURPOSE
1	6	466	1500	0	-	-	4 23	-	Purge force, nominal case
2	6	466	1500	0	-	-	1 90	-	Purge force, effect of spike position
3	6	466	1500	3	-	-	4 23	-	Purge force, effect of angle of attack
4	6	466	2000	0	-	-	4 23	-	Operation checkout, effect of higher TTO
5	6	466	3000	0	-	-	0, 1 71, 2.52 4 23, aft stop	-	Airflow calibration, effect of altitude
6	6	930	2946	0	-	-	0, 1 71, 2.52 4.23, aft stop	-	Airflow calibration, nominal case
7	6	930	2946	3	-	-	0, 1 71, 2 52 4 23, aft stop	-	Airflow calibration, effect of angle of attack
8	6	930	2946	0	1a, 1b	1	4 23	Supersonic	Inlet-combustor performance, ignition and inlet unstart limits
9	6	930	2946	0	1a, 1b, 2a, 2c	2	4 23	Supersonic	Inlet-combustor performance, injector optimization
10	6	930	2946	0	1c, 4, 2a, 2c	2	4 23	Supersonic	Inlet-combustor performance, injector optimization
11	6	930	2946	0	1a, 1b, 1c, 4	3	4 23	Supersonic	Inlet-combustor performance, injector optimization
12	6	930	2946	0	TBD	TBD	4.23	Supersonic	Inlet-combustor performance, injector optimization
13	6	466	3000	0	1a, 1b, 2a, 2c	2	4 23	Supersonic	Inlet-combustor performance, effect of altitude
14	6	700	3000	0	1a, 1b, 2a, 2c	2	4 23	Supersonic	Inlet-combustor performance effect of altitude
15	6	930	2946	0	1a, 1b, 2a, 2c	2	Aft stop	Supersonic	Inlet-combustor performance, effect of spike position
16	6	930	2946	0	1a, 1b, 2a, 2c	2	2 52	Supersonic	Inlet-combustor performance, effect of spike position
17	6	930	2946	0	1a, 1b, 2a, 2c	2	1 71	Supersonic	Inlet-combustor performance effect of spike position
18	6	930	2946	0	3a, 3b	4	4 23	Subsonic	Inlet-combustor performance, subsonic combustion
19	6	930	2946	0	3a, 3b	5	4 23	Subsonic & transition	Engine performance, subsonic combustion and transition
20	6	930	2946	0	1a, 1b, 2a, 2c	2	4 23	Supersonic	Engine performance, nominal case
21	6	466	2946	0	1a, 1b, 2a, 2c	2	4.23	Supersonic	Engine performance effect of altitude
22	6	930	2946	3	1a, 1b, 2a, 2c	2	4.23	Supersonic	Engine performance, effect of angle of attack
23	7	520	1500	0	-	-	2 88	-	Purge force
24	7	520	3965	0	-	-	2 34, 2 88 3.24	-	Airflow calibration, effect of altitude
25	7	1000	3840	0	-	-	1 98, 2.88 3 24	-	Airflow calibration, nominal case
26	7	1000	3840	3	-	-	2 34, 2 88 3 24	-	Airflow calibration, effect of angle of attack
27	7	520 & 1000	3965 3840	0	1a, 1b	6	2.88	Supersonic	Inlet-combustor performance, ignition and inlet unstart limits
28	7	1000	3840	0	1a, 1b, 2a, 2c	7	2 88	Supersonic	Inlet-combustor performance injector optimization
29	7	1000	3840	0	1c, 4, 2a, 2c	7	2 88	Supersonic	Inlet-combustor performance, injector optimization
30	7	1000	3840	0	1a, 1b, 1c, 4	8	2.88	Supersonic	Inlet-combustor performance, injector optimization
31	7	1000	3840	0	TBD	TBD	2 88	Supersonic	Inlet-combustor performance injector optimization
32	7	522	3965	0	1a, 1b, 2a, 2c	7	2 88	Supersonic	Inlet-combustor performance, effect of altitude
33	7	700	3965	0	1a, 1b, 2a, 2c	7	2 88	Supersonic	Inlet-combustor performance, effect of altitude
34	7	1000	3840	0	1a, 1b, 2a, 2c	7	3 24	Supersonic	Inlet-combustor performance, effect of spike position
35	7	1000	3840	0	1a, 1b, 2a, 2c	7	2 34	Supersonic	Inlet-combustor performance, effect of spike position
36	7	1000	3840	0	1a, 1b, 2a, 2c	7	1 98	Supersonic	Inlet-combustor performance, effect of spike position
37	7	1000	3840	0	1a, 1b, 2a, 2c	7	2 88	Supersonic	Engine performance, nominal case
38	7	522	3965	0	1a, 1b, 2a, 2c	7	2 88	Supersonic	Engine performance, effect of altitude
39	7	1000	3840	3	1a, 1b, 2a, 2c	7	2 88	Supersonic	Engine performance, effect of angle of attack
40	5	445	1500	0	1a, 1b, 2a, 2c	-	4 23	-	Purge force
41	5	206	2210	0	1a, 1b, 2a, 2c	-	4 23	-	Airflow calibration
42	5	415	2210	0	1a, 1b, 2a, 2c	9	4 23	Supersonic	Inlet-combustor performance, nominal case effect of altitude
43	5	415	2210	0	1a, 1b, 2a, 2c	TBD	4 23	Supersonic	Inlet-combustor performance, and ignitor flow rate
44	5	415	2210	0	1a, 1b, 2a, 2c	9	4 23	Supersonic	Engine performance, supersonic combustion
45	5	415	2210	0	3a, 3b	10	4.23	Subsonic	Engine performance, subsonic combustion
46	5	415	2210	3	1a, 1b, 2a, 2c	11	4 23	Subsonic & Supersonic	Engine performance, effect of angle of attack

Table 2. - HRE/AIM Test Run Summary (obtained from ref. 5).

Run No	Reading No	Date	Inlet Condition			Inlet Spike Position, Δx, in.	Fuel Injectors Used	* Tunnel Config	Time				Objective of Test	Comments
									Run		Useful			
			Mach No	P_{T0}, Psia	T_{T0}, °R				Min	Sec	Min	Sec		
1	1 through 5	9/14/72	-	-	-	-	-	A	-	-	-	-	Pre-run reference No-airflow engine Purge system calibration	Data not valid due to mechanical interference between AIM and outer cowl body
2	6	10/31/72	6	466	1500/2100	4.266	-	A	-	40	-	-	Facility and engine checkout	Test terminated due to cooling system overpressure abort system failure
3	7	11/1	6	466	1500	4 266	-	A	2	26	-	-	Same as run 2	Tunnel nozzle started Inlet started Strong shocks in test section Cell pressure ≈ 2 0 psia
4	8	11/2	6	466	1500	4 266	-	A	-	5	-	1	Establish facility operational procedure	Test aborted due to facility problem (TAFP)
5	9	11/16	6	466	1500	4 266	-	B1	-	-	-	-	Same as run 4	Facility shroud extended and washer added to assist tunnel start (TAFP)
	10	11/16	6	466	1500	4 266	-		-	-	-	-	Same as run 4	TAFP
	11	11/16	6	466	1500	4 266	-		2	39	-	99	Same as run 4	Nozzle start and inlet start obtained Cell pressure ≈ 1 2 psia Wedge nozzle pressure changed from 50 to 60 psia No improvement in cell pressure
6	12	11/21	6	466	2250	3 962	-	B1	-	-	-	-	Same as run 4	TAFP
	13	11/21	6	466	2250	3 962	-		1	07	-	-	Same as run 4	Wedge nozzle pressure 55 to 90 psig No tunnel nozzle start Nozzle started when inlet closed for shutdown
7	14	11/21	6	466	2950	3 962	-	B1	-	34	-	-	Same as run 4	TAFP
8	15	12/8/72	6	466	2950	4 266	-		-	16	-	-	Same as run 4	TAFP
9	16	1/18/73	6	466	2800	4 266	1C, 4	B1	-	35	-	-	Same as run 4	First combustion attempt TAFP
	17	"	"	"	"	"	1C, 4		1	06	-	-	Same as run 4	Nozzle start not obtained TAFP
	18	"	"	"	"	"	1C, 4		1	00	-	-	Same as run 4	Nozzle start obtained by cycling inlet spike open and closed Inlet start obtained Fuel ramped to equivalence ratio = .25 prior to tunnel unstart and TAFP
10	19	2/2	6	466	2950	0 99/ 4 00	-	B1	-	13	-	-	Same as run 4	Nozzle start with inlet partially open (Δx = 0 99) TAFP, No fuel injected
11	20	2/2	6	466	2950	0 99/ 4 00	1C, 4	B1	1	02	-	-	Same as run 4	No start at ΔX = 0 99 Nozzle started by cycling inlet spike Combustor lit causing tunnel unstart
12	21	2/15/73	6	750	3000	0 99/ 4 00	-	C1	-	-	-	-	Establish facility operational procedure	Jet pump installed Test aborted due to freezing of coolant supply system
13	22	2/21	6	750	3000	0 99/ 4 00	-	C1	-	22	-	-	Same as run 12 above	Jet pump used for this test Nozzle start obtained Unstart experienced when inlet was opened Test aborted manually, Nozzle restart noted during shutdown
14	23	2/21	6	750	3000	0 99/ 4.00	-	C1	-	58	-	-	Same as run 12 above	Jet pump and wedge nozzle inlet pressure varied Nozzle start was not obtained Use of jet pump did not affect test chamber pressure Seals between AIM support struts and facility shroud blown out
15	24	2/23	6	750	3000	0 99/ 4 00	-	C2	-	-	-	-	Same as run 12 above	Jet pump inactivated TAFP
	25	2/23	6	750	3000	0 99/ 4 00	-	C2	-	-	-	-	Same as run 12 above	TAFP
	26	2/23	6	750	3000	0 99/ 4 00	1A 1B	C2	-	49	-	-	Same as run 12 above	Nozzle start and engine start obtained Fuel injected for 4 seconds prior to nozzle unstart Unstart attributed to excessive fuel injected caused by facility valve malfunction
16	27	3/1	6	930	3100	0 99/ 4 00	-	C2	1	42	-	-	Same as run 12 above	Nozzle start and inlet start obtained Jet pump inactivated Fuel was injected engine inlet unstart experienced 12 seconds later Inlet start reestablished and fuel again injected Inlet unstart experienced 9 seconds later Test was manually aborted Cowl leading edge assembly separated from the outer body Cause of the separation was attributed to failure of the screw heads The failure was caused by overheating of the screw heads resulting from ingesting the hot tunnel environment into this area Ingestion of tunnel ambient was the result of a shock standing on the AIM cowl Additional diagnostic instrumentation was installed in the facility shroud and diffuser
17	28	3/16	6	930	3100	0 99/ 4 00	1A 1B	B2	1	11	-	-	Establish facility operational procedure to obtain hypersonic airflow	Tunnel configuration same as config B except washer inside diameter changed to 44 5 inches Tunnel unstart observed 19 seconds after fuel introduced Start reestablished Test manually aborted 3 seconds later when excessive heating of HRE-A11 cowl leading edge assembly mount flange was noted Excessive heating of the external skin of the AIM was noted

* see figure 5-9, reference 5

Table 2. - Continued.

Run No	Reading No	Date	Inlet Condition			Inlet Spike Position, Δx, in.	Fuel Injector Used	Tunnel Config	Time				Objective of Test	Comments
			Mach No.	P_{TO}, Psia	T_{TO}, °R				Run		Useful			
									Min	Sec	Min	Sec		
18	29	3/22	6	930	3100	0 99/ 4 00	1A, 1B	C1	-	36	-	-	Same as run 17 above	Re-run of reading 23 with seal repaired Jet pump did not improve tunnel start
19	30	4/27	6	750	2000	0.99/ 4 00	Fuel injec not planned	D	1	16	[illegible]	-	Same as run 17 above	Shroud inlet washer replaced with cone-cylinder and 15° conical diffuser inlet contraction replaced with 7° cone, tunnel nozzle did not start
20	31	4/30	6	750	2000	0 99/ 4 00	Fuel injec not planned	E	-	51	-	-	Establish operational procedure	First run with fully started tunnel Shroud inlet cone cylinder replaced with original 46 in diameter washer Tunnel start obtained when inlet spike was cycled twice, supersonic flow in diffuser Test terminated when target conditions achieved due to limited supply of nitrogen Test cell pressure was 1 2 psia
21	32	4/30	6	750	2000	0 99/ 4 00	Fuel injec not planned	E	1	42	-	-	Determine effect of varying wedge nozzle flow	Tunnel config Identical to run 20 Tunnel start obtained when inlet spike cycled twice Test cell pressure of 1 0 psia obtained Wedge nozzle has negligible effect on cell pressure
22	33	5/4	6	750		0 99/ 4 00	1B, 2B	E	1	25	-	-	Investigate inlet unstart limit with first stage combustion	First successful supersonic combustion run Intentional inlet unstart when first stage equivalence ratio reached 0 34 No second stage fuel added O-ring between the outerbody and the cowl leading edge extruded
23	34	5/15/73	6	750/ 930	3000	0 99/ 4 00	1A,1B,2A, 3A	E	2	08	-	-	Checkout AIM and facility. Fuel rich at P_{TO} = 750 psia ϕ= 1 0 at P_{TO} = 930 psia	Tunnel start and inlet start obtained ϕ of 1 35 set at P_{TO} = 150 psia and ϕ of 1 00 set at P_{TO} = 930 psia Facility fuel control valve for injector 1B oscillated Run proved AIM and tunnel can operate at ϕ > 1 0 Erosion of zirconium oxide coating on outer cowl body crossover manifold noted Erosion caused by carbon dust in tunnel flow
24	35	5/16/73	6	750	3000	0 99/ 4 00	1A 1B 2A,2C	E	-	25	-	-	Checkout AIM and facility Design injector locations	Test was aborted when engine inlet unstart was observed three seconds after initiation of fuel injection The engine unstart was result of injecting excessive fuel, caused by malfunction of facility control valve. Inspection of the unit revealed that the coolant leak on the spike assembly had progressed,and repair was necessary
25	36	5/24	6	750	3000	0 99/ 4 00	1A 1B 2A 2C	E	2	19	1	38	Demonstrate operation with design injector location and determine auto ignition limit	First good run with design injector locations Auto ignition obtained at ϕ = 0 55, first stage did not light unt ' second stage fuel added Overall ϕ ramped to 1 0 with first stage ϕ held at 0 24
26	37	5/30/73	6	750	3000	0 99/ 4 00	-	E	-	-	-	-	Determine effect of first stage ϕ on combustor performance	Test aborted due to malfunction of the steam ejector system
	38	5/30	6	750	3000	0 99/ 4 00	1A,1B 2A,2C	E	-	47	-	26	Determine effect of first stage ϕ on combustor performance	Test aborted when inlet unstarted Malfunction of the facility fuel control valve resulted in injecting excessive fuel into injector 2C 3 small cracks in spike skin in region of ignitors found in post run inspection Cracks repaired to prevent water leak into combustor
	39 thru 48	-	-	-	-	-	-	E	-	-	-	-	Purge system calibration test	
27	49	10/4/73	6	750	3000	-	-	E	-	-	-	-	Combustor optimization	TAFP
	50	10/5/73	6	750	3000	-	-						Combustor optimization	TAFP
	51	10/5/73	6	750	3000	0 99/ 4 00	1A,1B 2A 2C	E	2	39	2	09	Combustor optimization	Fuel control problems encountered
28	52	10/10/73	6	750	3000	0.99/ 4 00	1A,1B,2C,4	E	1	21	-	50	Combustor optimization	Investigating performance improvement due to injecting fuel closer to inlet Inlet unstarted at overall ϕ of 83
	53	10/10	-	-	-	-	-	E	-	-	-	-	Purge system calibration test Evacuated test cell	
29	54	10/11/73	6	750	3000	0 99/ 4 00	1A,1B,2A,2C	E	3	04	2	13	Combustor optimization	Attempt to determine effect of first stage ϕ and thrust on performance Auto ignition obtained at ϕ = .54 Data taken with ignitors on and off to determine effect on performance Inspection of unit revealed excessive coolant leak at spike/ ignitor body interface Repair necessary Tunnel operating procedure modified to reduce water ingestion into AIM wall pressure taps
	55	10/17/74	-	-	-	-	-	E	-	-	-	-	Purge system calibration evacuated test cell	
30	56	11/2/73	6	750	3000	-	-	E	-	-	-	-	Combustor optimization	Effect of fuel split between 1st and second stage injectors at overall ϕ = 1 0 investigated Also all second stage fuel added from innerbody side (system 2C) Fuel system purges turned off to determine effect on combustor wall pressure distribution Found thrust measurement affected by thermal expansion of fuel manifold 1B Inlet unstarted at overall ϕ of 1 0 with first stage ϕ = 0 36 Cavity pressure tap PA2 repaired for th s run Encountered fuel control problems

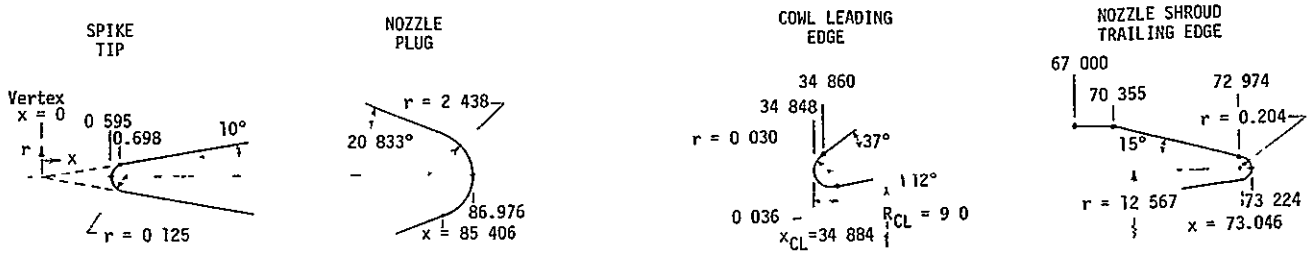
Table 2. - Continued.

Run No	Reading No.	Date	Inlet Condition			Inlet Spike Position, Δx, in.	Fuel Injectors Used	Tunnel Config.	Time				Objective of Test	Comments
			Mach No	P_{TO}, Psia	T_{TO}, °R				Run Min	Run Sec	Useful Min	Useful Sec		
	57	11/2/73	6	750	3000	0 99/ 4,00	1A, 1B, 2A 2C	E	-	-	-	-		
	58	11/7/74	-	-	-	-	-	E	-	-	-	-	Purge system calibration	Determine effect of thermal expansion of fuel manifold 1B.
31	59	11/8/73	6	750	3000	-	-		-	-	-	-	Combustor optimization	TAFP
	60	11/8/73	6	750	3000	0.99/ 4 00	1A, 1B, 2A, 2C	E	2	34	2	04	Combustor optimization	Overall ϕ held constant while amount of fuel from innerbody and outerbody injectors varied Fuel temperature compensation added to fuel control
32	61	11/13/73	6	750	3000	0.99/ 1 72/ 2 52	1A, 1B, 2A, 2C	E	2	50	2	21	Determine effect of spike position on engine performance	Inlet massflow ratios of 0 81 and 0 58 ran by varying the inlet spike position AIM wall pressure distribution measured with fuel line purge flow shut off Reworked section of the innerbody assembly burned and damaged during combustion, damaged section was removed Operational procedure modified to prevent further damage
33	62	11/20/73	6	930/ 466	3000			E					Performance test	TAFP
	63	11/21/73	6	930/ 466	3000	0 99/ 4 00	1A, 1B, 2A, 2C		2	59	1	52	Performance test	Tunnel total pressure varied to determine effect of altitude on performance
34	64	11/28/73	6	750	3000	0 99/ 4 00	1B, 2A, 2C, 3A, 3B	E	1	38	2	35	Subsonic-supersonic combustor mode transition	Transition from subsonic to supersonic combustion mode demonstrated Inspection of unit revealed coolant was flowing into the 1B fuel manifold and a nickel plated section of the innerbody had blistered. Separation at the spike skirt-spike body has progressed to approximately 1 0 inches Forward facing step at the interface of the cowl leading edge assembly and the outerbody had progressed to approximately 065 inches Larger fuel metering venturi installed in fuel system E
35	65	12/11/73	6	750	3000	4 00	1A, 1B, 2A, 2C	E	2	52	1	44	Supersonic combustion with instrumentation rig	Instrumentation rake installed Rake caused tunnel to unstart at ϕ = 1 05 Exhaust gas sampling data taken
	66	12/14	-	-	-	-	-	E	-	-	-	-	Purge system calibration	TAFP
	67	12/14	-	-	-	-	-		-	-	-	-	Purge system calibration	H_2 purge force calibration with cell evacuated
36	68	12/14/73	6	750	3000	-	-		-	-	-	-		Time of steady state fuel flow increased to 20 seconds to allow gas sampling data to stabilize
	69	12/14/73	6	750	3000	4 00	1A, 1B, 2A, 2C	E	1	20	2	17	Supersonic combustion	One tunnel unstart experienced near end of run Several tunnel unstarts prevented by shutting off fuel Incipient unstart detected by monitoring luminescent normal shock position in T V view of tunnel
37	70	12/19/73	6	750	3000	-	-	E	-	-	-	-	Determine effects of angle of attack	Test terminated prematurely due to frozen vent valve
	71	12/19/73	6	750	3000	4 00	1A, 1B, 2A, 2C		1	56	2	29		Cowl leading edge assembly removed after this run to remove facing step noted after reading 64
	72												Purge system calibration	Calibration with 1B fuel injector manifold heated test cell evacuated.
47	73, 74, 75	1/22/74	7	1000	3200	-	-	F	-	-	-	-	Mach 7 facility check-out	Test aborted due to facility problems (TAFP)
	76	1/23/74	7	1000	3200	-	-	F	-	-	-	-	Mach 7 facility check-out	TAFP
	77	1/23/74	7	1000	3200	2 57	-	F	2	-	-	-	Mach 7 facility check-out	Attempt to start tunnel at Mach 7 unsuccessful Secondary steam ejector used, wedge nozzle pressure varied, inlet spike assembly translated
48	78	1/25/74	7	1000	3500	2 57	-	G	2	-	-	-	Mach 7 facility check-out	Test aborted while attempting tunnel start TAFP Unusual amount of carbon dust deposited on AIM
49	79	2/15/74	7	1000	3100	-	-	G1	-	-	-	-	Facility check-out	AIM moved aft 5 5 inches
	80	2/15/74	7	1000	3100	2 57	-	G1	-	-	-	-	Facility check-out	TAFP (dewar water system frozen).
	81	2/20/74	7	1000	3300	2 57	2A, 2C	G2	2	38	-	-	Facility check-out	Blowout doors installed in tunnel closure Tunnel started when wedge nozzle pressure reduced Tunnel unstarted when combustor lit Restart not obtained due to change in wedge nozzle inlet pressure
50	82	2/22/74	7	1000	3300	-	-	G2					Facility check-out	TAFP Seal around outer cowl body support damaged
	83	2/22/74	7	1000	3300	2 57	-	G2	2	05	-	-	Facility check-out	Tunnel start not obtained
51	84, 85, 86	2/28/74	7	1000	3300	-	-	G2	-	-	-	-	Facility check-out	TAFP
	87	2/28/74	7	1000	3300	2 57	1A, 1B, 2A 2C		2	46	1	30	Facility check-out	Tunnel nozzle started, Unstarted at ϕ ~ 0 8

Table 2. - Concluded.

Run No	Reading No	Date	Inlet Condition			Inlet Spike Position, Δx, in.	Fuel Injectors Used	Tunnel Config.	Time				Objective of Test	Comments
			Mach No	P_{T0}, Psia	T_{T0}, °R				Run		Useful			
									Min	Sec	Min	Sec		
52	88	2/28	7	1000	3100	2 57	1A,1B,2A, 2C	F	2	45	1	31	Combustion evaluation	First successful Mach 7 run Tunnel closure removed Diffuser seal repaired Effect of fuel injection location investigated Row 2 ignitors on, Outer cowl body support damaged by carbon particles in tunnel flow due to failure of carbon part in facility heater Shroud inlet pressure rake hit and damaged Repaired outer cowl body support and water cooled protective wedge installed Coolant leak at the interface of spike skirt and spike body noted at angular location 270° in addition to leak at 180 degrees noted in Rdg 64 Leak at 180° progressed to approximately 1 25 inches Cowl leading edge tip radius and spike tip damaged by particles Damaged areas reworked
53	89	3/15/74	7	1000	3000	2 57	1A,1B,2A, 2C,4	F	3	-	2	02	Combustor optimization	Performance measured with various fuel injection schemes T_{T0} varied during run Ignitors on Test terminated prematurely due to failure of transducer in fuel control causing fuel control valve to fully open Abnormal amount of carbon dust observed in tunnel flow, Cowl leading edge tip radius and spike tip again damaged Tip section repaired
54	90	3/8/75	7	1000	3000	2.57	1A,1B,1C, 4	F	3	09	1	16	*Combustor optimization*	*Second stage fuel injection closer* to inlet (injectors 1C, 4) inlet unstarts encountered
55	91	3/12/74	7	1000	3000	2.57	1A,1B,2C, 4	F	2	52	1	32	Effect of angle of attack	Tunnel start improved at angle of attack Tunnel started at P_{T0} = 850 psia. 3 inlet unstarts encountered due to excessive 1st stage fuel Total coolant leak into combustor estimated to be 5 0 gpm
56	92	3/18/74	7	1000	2900	2 57	1A,1B,2C, 4	F	3	50	2	30	Combustor performance with instrumentation rake installed.	*Instrumentation rake blockage had adverse effect on tunnel start,* Inlet spike stroked twice to start tunnel Oxygen content of tunnel flow varied while AIM exhaust gas sampling data taken
57	93	3/27/74	5	415	2210	4 0	1A,1B,2A, 3A,3B	F	0	85	-	-	Facility check-out	First Mach 5 run Subsonic combustion data obtained. Run terminated prematurely (TAFP)
58	94	3/28/74	5	(a) 415 (b) 300 (c) 206	2210 3000 2210	4 00 4 00 4.00	1A,1B 2A, 3A,3B 1A,1B,2A, 3A,3B 1A,1B,2A 3A 3B	F	2	25	2	01	Combustor optimization	Subsonic and supersonic combustion and transition demonstrated Four unstarts experienced, three unstarts attributed to *high* cell pressure one to injecting excessive fuel intentionally into the AIM More carbon in tunnel flow Cowl leading edge and spike tip damaged Both reworked.
59	95	3/29/74	5	415 300 206	2210 3000 2210	4 00 4 00 4 00	1A,1B,2A, 2C 1A,1B,2A, 2C 1A 1B,2A, 2C	F	3	41	3	20	Combustor optimization	All comments made for Rdg 94 applicable for this run, except *combustion was limited to supersonic combustion mode.* Four engine unstarts experienced Three unstarts were attributed to facility conditions and the other to programmed to determine inlet unstart limit
60	96	4/15	5	415 300 206	2210 3000 2210	4.00 4.00 4 00	1A,1B,2A, 3A,3B	F					Evaluate effects of *angle* of attack	Subsonic and supersonic combustion and transition demonstrated at angle of attack Intentional engine unstart obtained when excessive fuel was injected in supersonic combustion mode
61	97	4/22	5	206/ 415	2210	4.00	2A, 3A, 3B	F					Combustor performance with instrumentation rake installed	Combustor exit flow conditions surveyed Gas sampling data taken Blockage of instrumentation rake had adverse effect on tunnel operation

Table 3 - AIM aerodynamic coordinates
(Mach 6 cowl position, x_{CL} = 34 844 in)



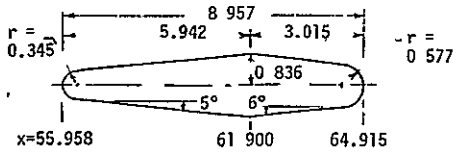
a) Centerbody

x, in	r, in	
0.595	0 0	90°
0 698	0 123	st line
18 360	3 237	10°
19 304	3 411	
20 443	3 633	
21.691	3 885	
22.830	4.122	
23 850	4.338	
25 875	4.782	
26 766	4 985	
27 900	5 256	
28 904	5 518	
29 655	5 726	15 819°
30 360	5 926	
32.760	6 660	
34 080	7.140	22 0°
37 710	8 607	
38 070	8 734	
38 538	8 874	
38.826	8 942	
39 132	9 000	
39 780	9.096	
40.500	9 180- 5 645° Throat	
42 000	9 318	
43.400	9 415	
44 000	9 452	
45.000	9 518	
46 000	9 578	
47 000	9 624	
47 600	9 650	
48.400	9.670	
55 760	9 670	End of spike, step
55 760	9 406	
61.900	9 406	Thermal throat
65 740	9 406	
67 553	9.072	20.833°
85 406	2.278	
86.976	0 0	90°

b) Outerbody

x, in	r, in		
40 894	11 611		External
36 750	10 103		
36 250	9 975		
36.000	9.808		
35 750	9 685		
35 437	9 487	37°	
34 860	9 053		
34 848	9.029	90°	Internal
34 884	9 000	12°	
35 397	9 104		
35 874	9 192	10°	
36 171	9.241		
36 414	9 278	8°	
36 765	9 322		
37 494	9 398		
40 500	9 695	5 645°	
40 894	9 720		
41 894	9 810		
42 894	9 890		
43 894	9 960		
46 294	10.132		
55 760	10.873		
57 000	10 955		
58.000	11 000		
58 700	11 022		
61 900	11 022	Thermal throat	
65 980	11 022		
66 220	11 042		
66 740	11.132		
67 740	11 348		
68.780	11 572		
69 740	11 773		
70 820	11 989		
71 660	12 146		
72 260	12 249		
72 920	12 349		
72 980	12 357		
73 046	12.365		
73 224	12 567	90°	
72 974	12 791	15°	External
70 355	13 493		
67 000	13 493		

c) Internal struts (6)



(d) Cowl lip design positions

	x_{CL}, in	Δx, in	x_{CL}/R_{CL}
Close off	39 150	0 0	4 350
Inlet start	38 160	0 990	4 240
Mach 8	36 990	2 160	4 110
Mach 7	35 270	2.880	4 030
Mach 4 - 6	34 884	4 266	3 876

Table 4. - HRE/AIM Instrumentation
(obtained from ref. 5).

(a) Coding for instrumentation list.

The code for the instrumentation listed in the "Identification" column is as follows. Sample, S-P-14.492-0°11'-90-3 (A-B-C-D-E-F).

"A" designates the component on which the instrumentation is located

S = inlet spike assembly

I = innerbody assembly

NP = nozzle plug assembly

CO = cowl leading edge assembly (outside)

C = cowl leading edge assembly (combustor side)

O = outerbody

N = nozzle shroud (combustor side)

NO = nozzle shroud (outside)

CE = combustor exit

EF = engine airflow-metering duct

F = fluids

"B" designates type of instrumentation

P = pressure

T = temperature

"C" designates the location of the instrumentation in terms of station, with the inlet spike assembly positioned for testing at Mach 6 condition.

"D" designates the angular location in degrees and minutes.

"E" designates position of the pressure pickup with respect to airflow in degrees, or, if the instrument is a temperature sensor, it designates the thermocouple:

CA = chromel alumel

CuC = copper constantan

P/rh = platinum-platinum/rhodium

"F" designates the leg through which the leads are brought out.

An "X" anywhere in the Identification Code indicates that the parameter was not applicable.

xxx/yy in the "Reading No." column indicates the Channel No. (xxx) on which the parameter was recorded, and the rated capacity (yy) of the transducer used.

The "N/U" Code in the "Reading No." Column indicates channels that were not used.

"LeRC Sys" - recorded on separate system, therefore no channel number.

Table 4. - Continued.

(b) Instrumentation list.

Measurement Number	Identification	READING NUMBER																								
		31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
1-S	S-P - 0 595 - 0 - 0-3	121/25	→	*																					
2-S	S-P - 14 492 - 0°11' - 90-3	N/U	→	*																					
3-S	S-P - 14 483 - 271°08' - 90-3	123/10		→		123/10																			→
4-S	S-P - 14 473 - 180°5' - 90-3	N/U	→	*																					
5-S	S-P - 14 4 - 90 - 90	Not Routed																							
6-S	S-P - 30 695 - 359°36' - 90-3	125/10																							
7-S	S-P - 35 085 - 359°34' - 90-3	126/10																							
8-S	S-P - 35 071 - 269°35' - 90-3	127/10																							
9-S	S-P - 35 071 - 179°28' - 90-3	259/25																							
10-S	S-P - 35 079 - 89°23' - 90-3	260/10																							
11-S	S-P - 35 580 - 359°32' - 90-3	261/10		→																					
12-S	S-P - 36 077 - 359°34' - 90-3	262/10																							
13-S	S-P - 36 487 - 359°30' - 90-3	263/10																							
14-S	S-P - 36 476 - 269°31 - 90-3	264/10																							
15-S	S-P - 36 476 - 179°27 - 90-3	265/25																							
16-S	S-P - 36 482 - 89°29' - 90-3	266/15													→	266/10									→
17-S	S-P - 36 984 - 359°32' - 90-3	128/10																					128/15		→
18-S	S-P - 37 5 - 0 - 90-3	Not Routed																							
19-S	S-P - 38 0 - 0 - 90-3	Not Routed																							
20-S	S-P - 38 017 - 269°27' - 90-3	122/10																					122/15		→
21-S	S-P - 38 001 - 179°23' - 90	Not Routed																							
22-S	S-P - 38 00 - 270 - 90	Not Routed																							
23-S	S-P - 38 5 - 0 - 90	Not Routed																							
24-S	S-P - 39 024 - 359°25' - 90-4	129/20																					129/25		→
25-S	S-P - 39 011 - 269°25' - 90-4	N/U																							
26-S	S-P - 38 996 - 179°23' - 90-4	N/U		→	*																				
27-S	S-P - 39 0 - 270° - 90	Not Routed																							
28-S	S-P - 39 497 - 359°24' - 90-4	130/25													→	130/15							130/25		→
29-S	S-P - 40 027 - 359°24' - 90-4	131/25																							
30-S	S-P - 40 023 - 269°28' - 90-4	132/25		→	*																				
31-S	S-P - 40 015 - 179°25' - 90-4	267/25									→	267/50			→	267/25									→
32-S	S-P - 40 015 - 89°20' - 90-4	133/25		→	*																				
33-S	S-P - 41-498 - 359°30' - 90-4	134/75													→	134/25					→	134/50	→	134/75	→
34-S	S-P - 42 464 - 359°28' - 90-4	135/75													→	135/50							→	135/75	→
35-S	S-P - 43.7 - 0 - 90	Not Routed																							
36-S	S-P - 43.7 - 90 - 90	Not Routed																							
37-S	S-P - 43.7 - 180 - 90	Not Routed																							
38-S	S-P - 43 7 - 270 - 90	Not Routed																							
39-S	S-P - 44 796 - 359°28' - 90-4	136/75													→	136/50					→	136/75			→
40-S	S-P - 45 0 - 0 - 90	Not Routed																							
41-S	S-P - 47 315 - 359°28' - 90-4	268/75									→	268/100			→	268/50							→	268/75	→
42-S	S-P - 47 301 - 269°22' - 90-4	137/75													→	137/50							→	137/75	→
43-S	S-P - 47 289 - 179°15' - 90-4	138/75													→	138/50							→	138/75	→
44-S	S-P - 47 309 - 89°20' - 90-4	139/75													→	139/50							→	139/75	→
45-S	S-P - 48 109 - 359°28' - 90-4	269/75									→	269/100			→	269/50							→	269/75	→
46-S	S-T - 24 0 - 359°45' -	Not Routed																							
47-S	S-T - 37 789 - 359°30' - CA-3	303/50mv		→	*																				
48-S	S-T - 38 017 - 354°35' - CA-3	N/U																							
49-S	S-T - 40 021 - 354°30' - CA-4	305/50mv																							
50-S	S-T - 41 965 - 359°30' - CA-4	306/50mv		→	*																				
51-S	S-T - 44 796 - 354°27' - CA-4	307/50mv																							
52-S	LVDT (Spike Position)	120/100mv = 4 372 inches		→	*																				
77-T	Load Cell	277/3000 lb = 20mv		→	*																				

*Continuous to end

S-89719

Table 4. - Continued.

(b) Continued

Measurement Number	Identification	READING NUMBER																							
		31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
1-I	I-P - 54 519 - 359°49' - 90-3	143/20 →									143/25	143/50											143/100 →		
2-I	I-P - 54 529 - 269°49' - 90-3	N/U →		N/U	186/50 →																		186/100 →		
3-I	I-P - 54 512 - 179°41' - 90-3	141/75 →														141/50 →							141/75 →		
4-I	I-P - 54 514 - 90° 0' - 90-4	N/U →		N/U	191/50 →																		191/100 →		
5-I	I-P - 56 004 - 0°48' - 90-4	271/75 →														271/50 →							271/100 →		
6-I	I-P - 56 0 - 32°30' - 90	Not Routed																							
7-I	I-P - 56 0 - 178°30' - 90	Not Routed																							
8-I	I-P - 56 0 - 252°30' - 90	Not Routed																							
9-I	I-P - 64 799 - 359°45' - 90-4	270/75 →														270/20 →							270/50 →		
10-I	I-T - 54 0 - 0	Not Routed																							
11-I	I-T - 55 25 - 0	Not Routed																							
12-I	I-T - 60 0 - 0	Not Routed																							
13-I	I-T - 59 979 - 240° 0' - CA-3	308/50 mv																							
14-I	I-T - 60 019 - 120° 0' - CA-4	290/50 mv →		*																					
15-I	I-T - 64 799 - 354°56' - CA-4	309/50 mv																							

*Continuous to end

S-89686

Measurement Number	Identification	READING NUMBER																							
		31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
1-NP	NP-P - 66.640 - 59°54' - 90-4	144/20 →														144/10 →							144/25 →		
2-NP	NP-P - 68.080 - 119°38' - 90-4	145/10 →																					145/20 →		
3-NP	NP-P - 69.405 - 180° 8' - 90-4	146/10																							
4-NP	NP-P - 70.790 - 240°12' - 90-4	147/10																							
5-NP	NP-P - 70 465 - 300°12' - 90-4	148/10																							
6-NP	NP-P - 74 550 - 0°10' - 90-4	149/10																							
7-NP	NP-P - 77 400 - 60° 0' - 90-4	150/10																							
8-NP	NP-P - 81.295 - 120° 8' - 90-4	151/10																							
9-NP	NP-P - 84.105 - 180° 5' - 90-4	152/10																							
10-NP	NP-P - 86.967 - ℄ - X-4	153/10																							
11-NP	NP-T - 68 080 - 124°15' - CA-3	310/50 mv →		*																					
12-NP	NP-T - 70 790 - 245°12' - CA-3	311/50 mv →		*																					
13-NP	NP-T - 74 45 - 5	Not Routed																							
14-NP	NP-T - 81.300 - 125° 8' - CA-4	312/50 mv →		*																					

*Continuous to end

S-89679

Table 4. - Continued.

(b) Continued.

Measurement Number	Identification	READING NUMBER																								
		31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
1-CO	CO-P - 35.525 - 83° 2' - 90-4	N/U → *																							
2-CO	CO-P - 35.514 - 172°58' - 90-4	155/25 →											N/U	155/25	155/15 →						→	N/U	155/15	125/20	N/U
3-CO	CO-P - 35 544 - 262°56' - 90-3	N/U →	N/U	156/15										156/15							→		156/15	156/20	
4-CO	CO-P - 35 519 - 352°59' - 90-3	157/25 →												157/25	→	N/U	N/U	N/U	N/U	157/25	→		157/15	→	
5-CO	CO-P - 37 040 - 83° 4' - 90-4	N/U →	N/U	158/10										158/10					→	158/10	→		158/10	→	
6-CO	CO-P - 37 044 - 173° 5' - 90-4	159/15 →												159/15							→		159/15	→	
7-CO	CO-P - 37.047 - 263° 5' - 90-3	N/U →	N/U	160/10										160/10	→	N/U	N/U	N/U	N/U	160/10	→		160/10	→	
8-CO	CO-P - 37 044 - 353° 2' - 90-3	161/15 →												161/15	→		161/10	→		161/10	→		161/10	→	
9-CO	CO-P - 39 008 - 83° 7' - 90-4	N/U →	N/U	162/10										162/10	→	N/U	N/U	N/U	N/U	162/10	→		162/10	→	
10-CO	CO-P - 39.004 - 173° 7' - 90-4	163/15 →												163/15							→		163/15	→	
11-CO	CO-P - 39.004 - 263° 1' - 90-3	N/U →	N/U	164/10										164/10							→		164/10	→	
12-CO	CO-P - 39 000 - 353° 6' - 90-3	165/15 →												165/15	→	165/10					→		165/10	→	
13-CO	CO-P - 40.509 - 83° 6' - 90-4	N/U →	N/U	166/10							166/15	→		166/15	→	N/U	N/U	N/U	N/U	166/15	→		166/15	→	
14-CO	CO-P - 40 507 - 173° 6' - 90-4	167/15 →												167/15	→	167/10	→				→	N/U	167/10	→	N/U
15-CO	CO-P - 40 504 - 263° 4' - 90-3	Not Routed																							
16-CO	CO-P - 40 500 - 353° 5' - 90-3	169/15 →												169/15	→	N/U	N/U	N/U	N/U	169/15	→	N/U	169/15	169/20	N/U
17-CO	CO-P - 40 004 - 210° 2' - 90-3	170/15 →												170/15	→					170/15	→		170/15	→	
18-CO	CO-P - 40 360 - 210° 7' - 75-3	N/U →	N/U	171/10										171/10	→					171/10	→		171/10	→	
19-CO	CO-P - 40 680 - 210° 3' - 110-3	N/U →	N/U	172/10										172/10	→					172/10	→		172/10	→	
20-CO	CO-P - 40 249 - 330° 1' - 135-3	173/15 →												173/15	→					173/15	→		173/15	→	
21-CO	CO-P - 40.654 - 330° 0' - 110-3	N/U →	N/U	174/10										174/10	→	N/U	N/U	N/U	N/U	174/10	→	N/U	174/10	→	N/U
22-CO	CO-P - 40 004 - 0° 5' - 110-4	N/U →	N/U	175/25											→	N/U	N/U	N/U	N/U	176/10	→			176/15	→
23-CO	CO-P - 40 364 - 359°57' - 75-3	N/U →	N/U	176/10										177/15	→	N/U	N/U	N/U	N/U	177/15	→	N/U	177/15	→	N/U
24-CO	CO-P - 40 655 - 0° 3' - 110-3	177/15 →												178/20	→	N/U	N/U	N/U	N/U	178/20	→	N/U	178/20	→	N/U
25-CO	CO-P - 40.209 - 180°10' - 135-4	178/15 →									178/20	→	N/U	179/25	→	N/U	N/U	N/U	N/U	179/25	→	N/U	179/25	→	N/U
26-CO	CO-P - 40 656 - 180° 5' - 110-4	179/15 →		179/25									N/U												
31-C	C-P - 35 514 - 359°58' - 90-3	180/50 →															180/25						180/50	→	
32-C	C-P - 36.0 - 0 - 90	181/50 →															181/25						181/50	→	
33-C	C-P - 36 685 - 0° 8' - 90-4	182/50 →															182/25						182/50	→	
34-C	C-P - 36.694 - 180°10' - 90-3	183/50 →															183/25						183/50	→	
35-C	C-P - 37.034 - 0° 8' - 90-4	184/50 →															184/25						184/50	→	
36-C	C-P - 37.044 - 90°10' - 90-4	185/50 →															185/25						185/50	→	
37-C	C-P - 37 049 - 180° 7' - 90-3	N/U → *																							
38-C	C-P - 37 034 - 270° 7' - 90	Damaged																							
39-C	C-P - 37 544 - 0°10' - 90-4	187/50 →															187/25						187/50	→	
40-C	C-P - 38.044 - 0°10' - 86-4	188/50 →															188/25						188/50	→	
41-C	C-P - 38 044 - 90°10' - 86-4	189/50 →															189/25						189/50	→	
42-C	C-P - 38.049 - 180° 7' - 86-4	190/50 →															190/25						190/50	→	
43-C	C-P - 38.041 - 210° 7' - 86-3	N/U → *																							
44-C	C-P - 38 514 - 0° 5' - 94-4	192/50 →															192/25						192/50	→	
45-C	C-P - 39.014 - 0° 5' - 94-4	193/50 →															193/25						193/50	→	
46-C	C-P - 39 024 - 90° 7' - 94-4	194/50 →															194/25				194/50				
47-C	C-P - 39.019 - 180° 4' - 94-	Damaged																							
48-C	C-P - 39 014 - 270° 0' - 94-3	195/50 →															195/25						195/50	→	
49-C	C-P - 39 511 - 359° 4' - 94-3	196/50 →															196/25						196/50	→	
50-C	C-P - 39 995 - 0° 8' - 90-4	197/50 →															197/25						197/50	→	
51-C	C-P - 40 00 - 90° 7' - 90-4	N/U → *																							
52-C	C-P - 39.994 - 180° 7' - 90-3	199/50 →															199/25						199/50	→	
53-C	C-P - 40 004 - 270° 5' - 90	Damaged																							
54-C	C-T - 37 044 - 7° 9' - CA-4	314/50 mv → *																							
55-C	C-T - 39 014 - 7° 5' - CA-4	315/50 mv → *																							
56-C	C-T - 39.994 - 7° 8' - CA-4	316/50 mv → *																							
57-C	C-T - 40.0 - 90° - CA	Not Routed																							
58-C	C-T - 40 004 - 180° 7' - CA-3	N/U → *																							
59-C	C-T - 40 000 - 277° 4' - CA-3	292/50 mv →							N/U	→															N/U
60-CO	CO-T - 36 544 - 353° 2' - CA-3	313/50 mv → *																							
61-CO	CO-T - 38.504 - 0 - CA	Not Routed																							

*Continuous to end

S-89720

Table 4. - Continued.

(b) Continued.

Measurement Number	Identification	READING NUMBER																							
		31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
1-0	0-P - 41 06 - 0°0' - 110-4	201/75															201/50								
2-0	0-P - 41 06 - 180°0' - 110-4	272/75															272/50						272/75		
3-0	0-P - 41 06 - 210°0' - 110-3	N/U		N/U	228/75												228/50								
4-0	0-P - 41 06 - 330°0' - 110-3	N/U					N/U	200/75									200/50								
5-0	0-P - 43 786 - 1°0' - 90-4	202/75									202/100						202/50						202/75		
6-0	0-P - 43 786 - 90°0' - 90-4	N/U					N/U	203/75			203/100						203/50						203/75		
7-0	0-P - 43 731 - 180°0' - 90-3	204/75															204/50						204/75		
8-0	0-P - 43 786 - 270°0' - 90-3	N/U					N/U	205/75									205/50						205/75		
9-0	0-P - 45 222 - 1°0' - 90-4	206/75															206/50						206/75		
10-0	0-P - 47 016 - 1°0' - 90-4	273/75									273/100						273/50						273/75		
11-0	0-P - 49 005 - 1°0' - 90-4	207/75															207/50						207/75		
12-0	0-P - 49 020 - 90°0' - 90-4	N/U					N/U	219/50															219/75		
13-0	0-P - 49 003 - 180°0' - 90-4	N/U	*																						
14-0	0-P - 49 005 - 270°0' - 90-3	N/U					N/U	198/50			198/15	598/75					198/50						198/75		
15-0	0-P - 49.506 - 0° - 90-3	N/U																							
16-0	0-P - 50 405 - 0° - 90-4	208/75															208/50						208/75		
17-0	0-P - 50 411 - 90° - 90-4	N/U					N/U	221/50				221/75					221/50						221/75		
18-0	0-P - 50 411 - 18° - 90-4	N/U																							
19-0	0-P - 50 411 - 270° - 90-3	N/U																							
20-0	0-P - 50 505 - 1° - 90-4	N/U																							
21-0	0-P - 52 506 - 0° - 90-3	209/75															209/50						209/100		
22-0	0-P - 53 008 - 1° - 90-4	210/75															210/50						210/100		
23-0	0-P - 53 006 - 90° - 90-4	N/U					N/U	211/25			211/30						211/50						211/100		
24-0	0-P - 53 006 - 180° - 90-4	212/75	N/U																						N/U
25-0	0-P - 52.993 - 270° - 90-3	N/U					N/U	212/25			212/30						212/50						212/100		
26-0	0-P - 54 510 - 0° - 90-3	214/75															214/50						214/100		
27-0	0-P - 56 496 - 0° - 90-4	215/75															215/50						215/100		
28-0	0-P - 57 451 - 0° - 90-3	N/U					N/U	213/25			213/30						213/50						213/100		
29-0	0-P - 58 473 - 0° - 90-4	216/75															216/50						216/75		
30-0	0-P - 59 474 - 0° - 90-3	N/U																							
31-0	0-P - 60 476 - 0° - 90-4	217/50										217/75					217/25						217/75		
32-0	0-P - 61 870 - 0° - 90-3	218/50										218/75					218/25						218/75		
33-0	0-P - 61 881 - 110° - 90-4	N/U																							
34-0	0-P - 61 881 - 180° - 90-3	220/75															220/50						220/75		
35-0	0-P - 61 874 - 290° - 90-3	N/U																							
36-0	0-P - 62 976 - 0° - 90-4	N/U																							
37-0	0-P - 63 974 - 0° - 90-4	N/U																							
38-0	0-P - 64 975 - 1° - 90-4	222/20			222/50												222/15						222/75		
39-0	0-T - 41 978 - 0° - CA-3	317/50mv	*																						
40-0	0-T - 42 581 - 0° - CA-3	318/50mv																							
41-0	0-T - 43 786 - 359° - CA-4	319/50mv																							
42-0	0-T - 45 234 - 359° - CA-	320/50mv																							
43-0	0-T - 46 507 - 0° - CA-3	289/50mv																							
44-0	0-T - 46 510 - 90° - CA-4	293/50mv																							
45-0	0-T - 46 520 - 180° - CA-3	294/50mv																							
46-0	0-T - 46 491 - 270° - CA-3	295/50mv																							
47-0	0-T - 47 016 - 359° - CA-3	321/50mv																							
48-0	0-T - 48 0 - 0° - CA-	Not Routed																							
49-0	0-T - 49 005 - 359° - CA-3	322/50mv	*																						
50-0	0-T - 50 005 - 0° - CA-3	323/50mv																							
51-0	0-T - 50 014 - 90° - CA	Not Routed																							
52-0	0-T - 50 014 - 180° - CA-4	296/50mv	*																						

*Continuous to end

S 89691

Table 4. - Continued.

(b) Continued.

Measurement Number	Identification	READING NUMBER 31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
53-0	0-T - 50,010 - 270° - CA-	Not Routed																							
55-0	0-T - 51 505 - 359° - CA-3	324/50mv																							
55-0	0-T - 52 010 - 0° - CA-4	325/50mv		→ *																					
56-0	0-T - 52 996 - 359° - CA-3	326/50mv																							
57-0	0-T - 54 0 - 0° - CA-	Not Routed																							
58-0	0-T - 55 0 - 0° - CA-	Not Routed																							
59-0	0-T - 56 00 - 0° - CA-3	327/50mv																							
60-0	0-T - 56 00 - 120° - CA-3	297/50mv																							
61-0	0-T - 56 00 - 240° - CA-4	298/50mv																							
62-0	0-T - 57 010 - 0° - CA-3	328/50mv																							
63-0	0 T - 57 970 - 0° - CA-3	329/50mv																							
64-0	0-T - 58 969 - 0° - CA-3	330/50mv																							
65-0	0-T - 59 976 - 0° - CA-4	331/50mv																							
66-0	0-T - 60 974 - 0° - CA-4	332/50mv		→																					
67-0	0-T - 62 474 - 0° - CA-4	333/50mv																							
68-0	0-T - 62 474 - 120° - CA-3	299/50mv																							
69-0	0-T - 62 474 - 240° - CA-4	300/50mv																							
70-0	0-T - 63 970 - 0° - CA-3	334/50mv																							
71-0	0-T - 64 475 - 0° - CA-4	335/50mv																							
72-0	0-T - 65 224 - 359° - CA-3	336/50mv																							
73-0	0-T - 66 0 - 0° - CA-	Not Routed																							

S 89693

*Continuous to end

Measurement Number	Identification	READING NUMBER 31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
1-N	N-P - 66 635 - 298°55' - 80-3	223/20															223/10						223/25		
2-N	N-P - 67 305 - 240° - 78-3	224/15																							
3-N	N-P - 68 18 - 180°	Not Routed																							
4-N	N-P - 68 806 - 118°49' - 90-3	225/10																							
5-N	N-P - 69 605 - 58°53' - 90-3	N/U	N/U	N/U	226/10																				
6-N	N-P - 70 360 - 358°6' - 90-3	227/10																							
7-N	N-P - 71 225 - 299°0' - 90-3	N/U																							
8-N	N-P - 72 320 - 235°5' - 90-3	229/10																							
9-N	N-P - 73 030 - 178°17' - 92 5-4	230/10			230/25												230/15								
10-N	N-P - 73 224 - 0°10' - 188-4	N/U																							
11-N	N-P - 73 224 - 180°11' - 188-3	232/10																							
12-N	N-T - 67 330 - 237°57' - CA-4	301/50mv		→																					
13-N	N-T - 68 805 - 113°49' - CA-4	302/50 mv																							
14-N	N-T - 70 360 - 353°51' - CA-4	337/50mv																							
15-N	N-T - 72 300 - 240°7' - CA-4	338/50mv																							

S 89694

*Continuous to end

Measurement Number	Identification	READING NUMBER 31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
16-NO	NO-P - 70 921 - 180°12' - 90-4	233/10											N/U	233/10								N/U	233/10		N/U
17-NO	NO-P - 70 917 - 330°8' - 90-3	234/10											N/U	234/10								N/U	234/10		N/U
18-NO	NO-P - 71 040 - 134°53' - 90-4	235/10											N/U	235/10								N/U	235/10		N/U
19-NO	NO-P - 71.054 - 150°10' - 90-4	N/U																	N/U	154/15					
20-NO	NO-P - 71 053 - 155°35' - 90-4	237/10											N/U	237/10								N/U	237/10		N/U
21-NO	NO-P - 71 978 - 0°11' - 90-4	238/10											N/U	238/10								N/U	238/10		N/U
22-NO	NO-P - 71 965 - 180°12' - 90-4	239/10											N/U	239/10								N/U	239/10		N/U
23-NO	NO-P - 71 965 - 183°43' - 90-3	N/U																	N/U	168/15					
24-NO	NO-P - 71 960 - 192°53' - 90-3	N/U		→ *									N/U	242/10								N/U	242/10		N/U
25-NO	NO-P - 71 955 - 201°13' - 90-3	242/10																							
26-NO	NO-P - 71 945 - 210°13' - 90-3	N/U		→									N/U	243/10								N/U	243/10		N/U
27-NO	NO-P - 71.925 - 219°3' - 90-3	243/10		→ N/U	243/10																				
28-NO	NO-P - 71 920 - 227°53' - 90-3	N/U		→ *										245/10									245/10		
29-NO	NO-P - 71 920 - 236°41' - 90-3	245/10												246/10									246/10		
30-NO	NO-P - 71 957 - 330°8' - 90-3	246/10												247/10									247/10		
31-NO	NO-P - 71 971 - 340°19' - 90-4	247/10																							
32-NO	NO-P - 71.970 - 346°56' - 90-4	N/U		→ *										249/10									249/10		
33-NO	NO-P - 71 970 - 353°35' - 90-4	249/10												250/10									250/10		
34-NO	NO-P - 72 430 - 150°11' - 60-4	250/10																							

S 89718

*Continuous to end

Table 4. - Continued.

(b) Continued.

Measurement Number	Identification	READING NUMBER																							
		31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
35-OC	OCB - P - 66 34 - X - 180-X	251/10	→	*																					
1-F	S-P - 1A - 172 - X-3	N/U																							
2-F	S-P - 1A - 25 - X-3	244/200	→					73/300	→																
3-F	S-P - 1C - 175 - X-3	N/U	→				N/U	74/300	→																
4-F	S-P - 1C - 25 - X-3	N/U	→	*																					
5-F	S-P - 2C - 175 - X-4	N/U	→ 123/500	→	123/500	231/500	231/500	75/500	→																
6-F	S-P - 2C - 25 - X-4	N/U	→ 124/500	→	124/500	→																			
7-F	1-P - 3B - 95 - X-4	N/U	→				N/U	76/300	→																
8-F	1-P - 3B - 275 - X-4	N/U	→	*																					
9-F	O-P - 1B - 90 - X-4	240/200	→					77/300	→																
10-F	O-P - 1B - 270 - X-3	241/200	→	*																					
11-F	O-P - 4 - 90 - X-4	N/U	→				N/U	78/300	→																
12-F	O-P - 4 - 270 - X-X	Not Routed																							
13-F	O-P - 2A - 90 - X-X	Not Routed																							
14-F	O-P - 2A - 270 - X-3	N/U	→				N/U	79/500	→																
15-F	O-P - 3A - 90 - X-4	N/U	→ N/U	123/500	→			80/300	→																
16-F	O-P - 3A - 270 - X-3	N/U	→ N/U	124/500	→																				
17-F	S-T - 1A - 188 - CA-3	53/50																							
18-F	S-T - 1A - 30 - CA-3	54/50																							
19-F	S-T - 1C - 180 - CA-4	55/50																							
20-F	S-T - 1C - 30 - CA-4	56/50																							
21-F	S-T - 2C - 180 - CA-3	57/50																							
22-F	S-T - 2C - 30 - CA-3	58/50																							
23-F	1-T - 3B - 90 - CA-4	59/50																							
24-F	1-T - 3B - 270 - CA-4	60/50																							
25-F	O-T - 1B - 90 - CA-4	61/50		→ *																					
26-F	O-T - 1B - 270 - CA-3	62/50																							
27-F	O-T - 2A - 90 - CA-4	63/50																							
28-F	O-T - 2A - 270 - CA-3	64/50																							
29-F	O-T - 4 - 90 - CA-4	65/50																							
30-F	O-T - 4 - 270 - CA-3	66/50																							
31-F	O-T 3A - 90 - CA-4	67/50																							
32-F	O-T - 3A - 270 - CA-3	68/50																							
33-F	S-P - IGN O_2 - X - X-3	248/300																							
34-F	S-P - IGN O_2	Not Routed																							
35-F	O-P - IGN O_2 - X - X-4	236/300	→																				236/500	→	
36-F	O-P - IGN O_2	Not Routed																							
37-F	S-P - IGN H_2 - X - X-4	252/300	→																				252/500	→	
38-F	S-P - IGN H_2	Not Routed																							
39-F	O-P - IGN H_2 - X - X-4	253/300	→																				253/500	→	
40-F	O-P - IGN H_2	Not Routed																							
41-F	S-P - H_2O IN (TIP) - X - X-4																								
42-F	1-P - H_2O IN (TIP) - X - X-4																								
43-F	ST-P - H_2O IN (LE) - X - X-4	Visually Monitored																							
44-F	ST-P - H_2O IN (SIDE) - X - X-4																								
45-F	O-P - H_2O IN - X - X-3																								

*Continuous to end

Table 4. - Continued.

(b) Continued.

Measurement Number	Identification	READING NUMBER																							
		31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
46-F	OC-P - H_2O IN (A) - X - X-4	Visually Monitored																							
47-F	OC-P - H_2O IN (B) - X - X-4																								
48-F	OC-P - H_2O IN (C) - X - X-4																								
49-F	OC-P - H_2O IN (D) - X - X-4																								
50-F	S-P - H_2O OUT (TIP) - X - X-4																								
51-F	1-P - H_2O OUT - X - X-3																								
52-F	ST-P - H_2O OUT (LE) - X - X-3																								
53-F	ST-P - H_2O OUT (SIDE) -X X-3																								
54-F	O-P - H_2O OUT -X-X-3																								
55-F	OC-P - H_2O OUT (A) - X - X-3																								
56-F	OC-P - H_2O OUT (B) - X - X-3																								
57-F	OC-P - H_2O OUT (C) - X - X-3																								
58-F	OC-P - H_2O OUT (D) - X - X-3																								
59-F	S-ΔT - H_2O OUT - X - CuC-4	370/Δ5mv												386/5mv											
59-F	S-ΔT - H_2O IN - X- CuC-4													387/5mv											
60-F	1-ΔT - H_2O OUT - X - CuC 3	371/ΔT5mv												370/5mv											
60-F	1-ΔT - H_2O IN - X - CuC-4													371/5mv											
61-F	ST-ΔT - H_2O OUT LE - X - CuC-3	372/ΔT5mv													366/5mv										
61-F	ST-ΔT - H_2O IN LE - X - CuC-3														367/5mv										
62-F	ST-ΔT - H_2O OUT (SIDE) -X-CuC-3	373/ΔT5mv													368/5mv										
62-F	ST-ΔT - H_2O IN (SIDE) -X-CuC-4														369/5mv										
63-F	O-ΔT - H_2O OUT - X - CuC-3	374/ΔT5mv												372/5mv											
63-F	O-ΔT - H_2O IN - X - CuC-3													373/5mv											
64-F	HYD-P - IN - X - X-X	Visually Monitored																							
65-F	HYD-P - OUT - X - X-X																								
66-F	ΔT1B - 40 6 - 3 - CuC-4	375/ΔT5mv												374/5mv											
66-F	ΔT1A - 35 75 - 356 - CuC-3													375/5mv											
67-F	ΔT1B - 40 6 - 181 - CuC-4	376/ΔT5mv												376/5mv											
67-F	ΔT1A - 35 75 - 176 - CuC-3													377/5mv											
68-F	ΔT2D - 55 6 - 357 - CuC-3	377/ΔT5mv													352/5mv										
68-F	ΔT2C - 40 5 - 5 - CuC-4														353/5mv										
69-F	ΔT2D - 55 6 - 177 - CuC-4	378/ΔT5mv												388/5mv											
69-F	ΔT2C - 40 5 - 178 - CuC-4													389/5mv											
70-F	ΔT3F - 66 2 - 356 - CuC-3	379/ΔT5mv													359/5mv										
70-F	ΔT3E - 55 6 - 355 - CuC-3														358/5mv										
71 F	ΔT3F - 66 19 - 176 - CuC-4	380/ΔT5mv													351/5mv										
71-F	ΔT3E - 55 6 - 175 - CuC-4														350/5mv										
72-F	ΔT4H - 72 36 - 356 - CuC-4	381/ΔT5mv												378/5mv											
72-F	ΔT4G - 66 68 - 356 - CuC-4													379/5mv											
73-F	ΔT4H - 72 36 - 176 - CuC-4	382/ΔT5mv												380/5mv											
73-F	ΔT4G - 66 68 - 176 - CuC-4													381/5mv											

S-89721

Table 4. - Continued.

(b) Continued

Measurement Number	Identification	READING NUMBER 31	33	34	36	37	38	51	57	61	63	64	65	69	70	73	78	84	88	89	91	92	93	96	97
74-F	ΔT5J - 40 0 - 4 - CuC-3	383/ΔT5mv	→	→	→									→	361/5mv									→
74-F	ΔT5K - 47 84 - 357 - CuC-3		→	→	→									→	363/5mv									→
75-F	ΔT5J - 40 0 - 184 - CuC-4	384/ΔT5mv	→	→	→									→	354/5mv									→
75-F	ΔT5K - 47 84 - 181 - CuC-4		→	→	→									→	355/5mv									→
76-F	ΔT6M - 50 8 - 358 - CuC-3	385/ΔT5mv	→	→	→									→	364/5mv									→
76-F	ΔT6L - 48 58 - 357 - CuC-3		→	→	→									→	365/5mv									→
77-F	ΔT6M - 50 8 - 178 - CuC-4	386/ΔT5mv	→	→	→									→	356/5mv									→
77-F	ΔT6L - 48 58 - 181 - CuC-4		→	→	→									→	357/5mv									→
78-F	ΔT7P - 66 10 - 356 - CuC-3	387/ΔT5mv	→	→	→									382/5mv										→
78-F	ΔT7N - 50 8 - 354 - CuC-3		→	→	→									383/5mv										→
79-F	ΔT7P - 66 10 - 176 - CuC-4	388/ΔT5mv	→	→	→									384/5mv										→
79-F	ΔT7N - 50 8 - 174 - CuC-4		→	→	→									385/5mv										→
80-F	O-ΔT - H_2O OUT - X - X-4	389/ΔT5mv	→	→	→									360/5mv										→
80-F	O-ΔT - H_2O IN - X - X-4		→	→	→									362/5mv										→
81-F	O-P - H_2O OUT - X - X-3	Visually Monitored																						
82-F	O-P - H_2O IN - X - X-4																							
83-F	I-T - H_2O - 52 8 - 27 - CA-3	390/5mv	→	*																				
84-F	I-T - H_2O - 57 8 - 30 - CA-4	391/5mv	→	→	→			→						→	391/5mv									→
85-F	PURGE CAVITY PA-1-X - X - X-3	254/25	→	→	→		→	254/50																→
86-F	PURGE CAVITY PA-2-X - X - X-3	255/25	→	→	255/50	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
87-F	PURGE CAVITY PB-1-X - X - X-3	256/25																						
88-F	PURGE CAVITY PB-2-X - X - X-3	257/25																						
89-F	INNER BODY CAV PRES - X - X-4	258/50																						
90-F	INNER BODY CAV TEMP - X-X-CA-	69/5																						
91-F	PURGE CAVITY TA1 - X - X - CA-	394/5mv		*																				
92-F	PURGE CAVITY TA2 - X - X - CA-	395/5mv																						
93-F	PURGE CAVITY TB1 - X - X - CA-	396/5mv																						
94-F	PURGE CAVITY TB2 - X - X - CA-	397/5mv																						
95-F		N/U																						
96-F		N/U																						
97-F		N/U																						
98-F		N/U																						
99-F		N/U																						
100-F	PURGE CAVITY	70/50																						
101-F	PURGE CAVITY	71/50		*																				
102-F	PURGE CAVITY	72/50																						

*Continuous to end

S 89710

Table 4, - Concluded.

(b) Concluded

Measurement Number	Identification	READING NUMBER 65	92	97
1CE	CE-PT - 66 74 - 0 - 00 - X	155/75	155/50	155/75
2	CE-PS - 67 04 - 0 - 13 - X	156/50	156/15	156/50
3	CE-PS - 67 04 - 0 - 109 - X	157/50	157/15	157/50
4	CE-PS - 67 04 - 0 - 193 - X	158/50	158/15	158/50
5	CE-PS - 67 04 - 0 - 283 - X	159/50	159/15	159/50
6	CE-PT - 66 74 - 110 - 00 - X	160/75	160/50	160/75
7	CE-PS - 67 04 - 110 - 18 - X	161/50	161/15	161/50
8	CE-PS - 67 04 - 110 - 108 - X	162/50	162/15	162/50
9	CE-PS - 67 04 - 110 - 198 - X	163/50	163/15	163/50
10	CE-PS - 67 04 - 110 - 288 - X	164/50	164/15	164/50
11	CE-PT - 66 74 - 180 - 00 - X	165/75	165/50	165/75
12	CE-PS - 67 04 - 180 - 1 - X	166/50	166/15	166/50
13	CE-PS - 67 04 - 180 - 91 - X	167/50	167/15	167/50
14	CE-PS - 67 04 - 180 - 181 - X	169/50	169/15	169/50
15	CE-PS - 67 04 - 180 - 271 - X	170/50	170/15	170/50
16	CE-PT - 66.74 - 280 - 00 - X	171/75	171/50	171/75
17	CE-PS - 67 04 - 280 - 355 - X	172/50	172/15	172/50
18	CE-PS - 67 04 - 280 - 85 - X	173/50	173/15	173/50
19	CE-PS - 67 04 - 280 - 175 - X	174/50	174/15	174/50
20	CE-PS - 67 04 - 280 - 265 - X	177/50	177/15	177/50
21	CE-PT - 66.74 - 330 - 00 - X	178/75	178/50	178/75
22	CE-PS - 67 04 - 330 - 3 - X	179/50	179/15	179/50
23	CE-PS - 67 04 - 330 - 93 - X	233/50	233/15	233/50
24	CE-PS - 67 04 - 330 - 183 - X	234/50	234/15	234/50
25	CE-PS - 67 04 - 330 - 273 - X	235/50	235/15	235/50
26	CE-G-GS - 30 - X - X	LeRC sys	LeRC	LeRC
27	CE-G-TT - 30 - P/R - X	LeRC sys	124/20	124/20
28	CE-G-RT - 30 - C/A - X	LeRC sys	142/20	142/20
29	CE-G-PT - 30 - X - X	237/75	237/50	237/75
30	CE-G-PS - 30 - X - X	238/60	238/30	238/60
31	CE-G-GS - 70 - X - X	LeRC sys	LeRC	LeRC
32	CE-G-TT - 70 - P/R - X	LeRC sys	81/20	81/20
33	CE-G-RT - 70 - CA - X	LeRC sys	231/20	231/10
34	CE-G-PT - 70 - X - X	239/75	239/50	239/75
35	CE-G-PS - 70 - X - X	242/60	242/30	242/60
36	CE-G-GS - 170 - X - X	LeRC sys	LeRC	LeRC
37	CE-G-TT - 170 - X - X	LeRC sys	82/20	82/20
38	CE-G-RT - 170 - X - X	LeRC sys	244/20	244/10
39	CE-G-PT - 170 - X - X	243/75	243/50	243/75
40	CE-G-PS - 170 - X - X	245/60	245/30	245/60
41	CE-G-GS - 260 - X - X	LeRC sys	LeRC	LeRC
42	CE-G-TT - 260 - X - X	LeRC sys	345/20	LeRC
43	CE-G-RT - 260 - X - X	LeRC sys	LeRC	LeRC
44	CE-G-PT - 260 - X - X	246/75	246/50	246/75
45	CE-G-PS - 260 - X - X	247/60	247/30	247/60
46	CE-G-GS - 350 - X - X	LeRC sys	LeRC	LeRC
47	CE-G-TT - 350 - X - X	LeRC sys	346/20	LeRC
48	CE-G-RT - 350 - X - X	LeRC sys	140/20	140/20
49	CE-G-PT - 350 - X - X	249/75	249/50	249/75
50	CE-G-PS - 350 - X - X	250/60	250/50	250/60

Table 5. - Summary of HRE/AIM test points used for analyses.

(a) Mach 6 component integration results;

Page No.*	Reading Number	Time	M_o	P_{T_o}, psia	T_{T_o}, °R	X_{CL}, in.	α	Inj.1/ϕ_1	Inj.2/ϕ_2	Inj.3/ϕ_3	ϕ_T	Ignitors 1, 2, 3	Purpose & Remarks
—	33**	126.95	6.0	750	3000	35.2	0°	0	0	0	0	No	No fuel injection
—		161.15						1A,1B/.24	0	0	0.24	1,2	1st stage only
—		168.0						1A,1B/.3	0	0	0.30		1st stage only
—		174.65						1A,1B/.36	0	0	0.36		Max. ϕ, engine unstart
57	34	98.15	6.0	750	3000	35.2	0°	0	0	0	0	1,2	
65		104.45						1A,1B/.20	0	0	0.20		1st stage only
73		148.55						1A,1B/.23	2A/.58	0	0.81		1st and 2nd stages
81		181.85						1A,1B/.21	2A/.56	3A/.39	1.16		Max. ϕ, 3 stages
89		196.25		940				1A,1B/.15	2A/.44	3A/.32	0.91		Max. ϕ, 3 stages
—	36 a	119.18	6.0	750	3000	35.2	0°	0	0	0	0	No	Auto ignition
—	a	124.58						1A,1B/.26	0	0	0.26		
97		132.68						1A,1B/.25	2A,2C/.34	0	0.59		
106		144.38						1A,1B/.24	2A,2C/.49	0	0.73		
115		158.78						1A,1B/.23	2A,2C/.69	0	0.92		
124		173.18						1A,1B/.22	2A,2C/.75	0	0.97		
133	38	96.24	6.0	750	3000	35.2	0°	0	0	0	0	No	
141		107.05						1A,1B/.33	0	0	0.33		1st stage only
150		113.35						0	2C/.38	0	0.38		2nd stage only } transient
158		116.95						1A,1B/ 18	2C/.67		0 85		} data
167	52	165.93	6.0	750	3000	35.2	0°	0	0	0	0	No	ϕ1A,1B and ϕ4,2C
175		172.23						1A,1B/.24	4,2C/.26	0	0.50		
183		180.33						1A,1B/.20	4,2C/.41	0	0.61		
191		189.33						1A,1B/.20	4,2C/.53	0	0.73		
199	54	156.46	6.0	750	3000	35.2	0°	0	0	0	0	No	Constant ϕ1A,1B, ϕ2A,2C
207		185.26						1A,1B/.21	2A,2C/.64	0	0.85		ramped up 3 times
215		200.56						1A,1B/.23	2A,2C/.43	0	0.66		
223		222 16						1A,1B/.24	2A,2C/.25	0	0.49		
231		235.66						1A,1B/.24	2A,2C/.52	0	0.76		
239		253.66						1A,1B/.18	2A,2C/.60	0	0.78	1.2	
247		280.66						1A,1B/.20	2A,2C/.61	0	0.81	No	
255	57	195.11	6.0	750	3000	35.2	0°	0	0	0	0	No	Optimized performance
263		207.71						1A,1B/.21	2A,2C/.73	0	0.94		
271		234 71						1A,1B/.32	2A,2C/.60	0	0.92		
279		265.31						1A,1B/.21	2A,2C/.36	0	0.57		
287		287.81						1A,1B/.20	2A,2C/.54	0	0.74		
295	60	155.69	6.0	750	3000	35.2	0°	0	0	0	0	No	Variation of fuel schedule
303		178.19						1A,1B/.21	2A,2C/.64	0	0.85		
311		186.29						1A,1B/.22	2A,2C/.65	0	0.87		
319		202.49						1A,1B/.21	2A,2C/.65	0	0.86		
327		223.19						1A/.21	2A,2C/.66	0	0.87		
335		230.39						1A,1B/.21	2A,2C/.67	0	0.88		
343		241.19						1B/.19	2A,2C/.68	0	0.87		
351		249.29						1B/.24	2A,2C/.68	0	0.92		
359		258.29						0	2A,2C/.76	0	0.76		
367		264.59						0	2A,2C/.80	0	0.80		

*Reference 10

** Because of insufficient valid engine surface pressure measurements, performance results were not obtained.

a Listings not available.

Table 5. - Continued.

(b) Mach 6 engine performance results.

Page No.*	Reading Number	Time	M_o	P_{T_o}, psia	P_{T_o}, ^oR	x_{CL}, in.	α	Inj 1/ϕ_1	Inj.2/ϕ_2	Inj.3/ϕ_3	ϕ_T	Ignitors 1, 2, 3	Purpose & Remarks
55	61	178.86	6.0	750	3000	36.7	0°	0	0	0	0	No	Effect of spike position
63		198 66						1A,1B/.13	2A,2C/.36	0	0.49		
72		205.86						1A,1B/.15	2A,2C/.49	0	0.64		
81		212.16						1A,1B/ 15	2A,2C/.61	0	0.76		
90		222.06				↓	↓	1A,1B/ 14	2A,2C/.73	0	0.87	↓	↓
99		231.06				37 5	0°	0	0	0	0	No	Effect of spike position
108		243.66						1A,1B/.30	0	0	0.30		
117		246 36						1A,1B/.30	2A,2C/ 47	0	0.77		
126		251 76						1A,1B/.29	2A,2C/.65	0	0.94		
135		262 56						1A,1B/ 27	2A,2C/ 96	0	1 13		High test cell and
144	↓	273.36	↓	↓	↓	↓	↓	1A,1B/.26	2A,2C/115	0	1 41	↓	AIM nozz. pressures
153	63	186.15	6.0	930	3000	35.2	0°	0	0	0		No	Effect of altitude
161		192 45						1A,1B/ 24	2A,2C/.56	0	0 80		
169		216.75		↓				1A,1B/ 24	2A,2C/.76	0	1 00		
177		249.15		470				0	0	0	0		
185	↓	275.25	↓	470	↓	↓	↓	1A,1B/.26	2A,2C/.73	0	0 99	↓	↓
193	64	156.11	6.0	750	3000	35.2	0°	0	0	0	0	No	Subsonic-supersonic
201		167 81						1B/.24	2A,2C/ 77	0	1 01		transition
209		202 01						0	0	3A,3B/.85	0.85		
217		239 81						1B/.23	2A,2C/1.11	0	1.34		
225		261.41						1B/.24	0	3A,3B/ 8	1.04		
233	↓	293 81	↓	↓	↓	↓	↓	1B/.26	2A,2C/.8	0	1.06	↓	↓
241	65	164.03	6 0	750	3000	35.2	0°	0	0	0	0	No	Supersonic combustion
249		174.83						1A,1B/.23	0	0	0.23		with instrumentation rig,
257		180.23						1A,1B/.24	2A,2C/.34	0	0.58		gas sampling
265		196.43						1A,1B/.24	2A,2C/.59	0	0.83		
273		201.83						1A,1B/.24	2A,2C/.80	0	1.04		
281		218.03						1A,1B/.27	2A,2C/ 76	0	1 03		
289	↓	235.13	↓	↓	↓	↓	↓	1A,1B/.25	2A,2C/.79	0	1.04	↓	↓
297	69	177.00	6.0	750	3000	35.2	0°	0	0	0	0	No	Supersonic combustion
305		198.60						1A,1B/.22	0	0	0.22		with instrumentation rig,
313		212.10						1A,1B/ 23	2A,2C/.48	0	0 48		gas sampling
321		226.50						1A,1B/.23	2A,2C/.59	0	0.82		
329		256.20						1A,1B/.22	2A,2C/ 69	0	0.91		
337	↓	265.20	↓	↓	↓	↓	↓	1A,1B/.23	2A,2C/.79	0	1.02	↓	↓
345	71	160 54	6.0	750	3000	35 2	3°	0	0	0	0	No	Angle of attack perform-
353		171.39						1A,1B/.22	0	0	0.22		ance
361		174.94						1A,1B/.22	2A,2C/.31	0	0.53		
369		193.84						1A,1B/.24	2A,2C/.59	0	0.83		
377		207 34						1A,1B/.24	2A,2C/ 81	0	1.05		
385		248.74						0	2A,2C/1.33	0	1.33		
393		266.74						0	2A,2C/.87	0	0.87		
401		270.34						0	2A,2C/.87	0	0.87		
409		284.74						0	2A,2C/.66	0	0.66		
417	↓	285.64	↓	↓	↓	↓	↓	0	2A,2C/.66	0	0.66	↓	↓

*Herein

Table 5. - Continued.

(c) Mach 7 component integration and engine performance results.

Page* No.	Reading Number	Time	M_o	P_{T_o}, psia	P_{T_o}, ^oR	X_{CL}, in.	α	Inj.1/ϕ_1	Inj.2/ϕ_2	Inj.3/ϕ_3	ϕ_T	Ignitors 1, 2, 3	Purpose & Remarks
54	88	236.40	7.25	1000	3160	36.6	0°	0	0	0	0	2	Exploratory run
62	↓	245.40	↓	↓	3170	↓	↓	1A,1B/.30	0	0	0.30	↓	↓
70	↓	261.60	↓	↓	3250	↓	↓	1A,1B/.42	0	0	0.42	↓	↓
78	↓	269.70	↓	↓	3280	↓	↓	1A,1B/.55	0	0	0.55	↓	↓
86	↓	270.60	↓	↓	3270	↓	↓	1A,1B/.57	0	0	0.57	↓	↓
94	↓	271.50	↓	↓	3270	↓	↓	1A,1B/.58	0	0	0.58	↓	↓
102	↓	278.70	↓	↓	3270	↓	↓	1A,4/.16	2A,2C/.70	0	0.86	↓	↓
111	↓	285.90	↓	↓	3250	↓	↓	1A,4/.31	2A,2C/.60	0	0.91	↓	↓
120	↓	294.00	↓	↓	3200	↓	↓	1A,4/.28	2A,2C/ 57	0	0 85	↓	↓
129	↓	299.40	↓	↓	3150	↓	↓	1A,4/.45	2A,2C/.46	0	0.91	↓	↓
138	↓	305.70	↓	↓	3090	↓	↓	1A,4/.49	2A,2C/.41	0	0.90	↓	↓
147	89	250 77	7.4	1000	1790	36.6	0°	0	0	0	0	No	Effect of low T_{TO}
155	↓	272.37	7.25	↓	3180	↓	↓	1A,1B/.32	2A,2C/.47	0	0 79	2	↓
164	↓	283.17	↓	↓	3270	↓	↓	1A,1B/.34	2A,2C/ 55	0	0 89	↓	↓
173	↓	290.37	↓	↓	3270	↓	↓	0	2A,2C/.75	0	0.75	↓	↓
181	↓	294.87	↓	↓	3310	↓	↓	0	2A,2C/.92	0	0 92	↓	↓
189	↓	304.77	↓	↓	3290	↓	↓	0	2A,2C/.59	0	0.59	↓	↓
197	↓	310.17	↓	↓	3060	↓	↓	1A,1B/.32	2A,2C/.57	0	0.89	↓	↓
206, 232	**	316.47	7.30	↓	2720	↓	↓	1A,1B/.29	2A,2C/.54	0	0.83	↓	↓
215, 241	**	327.27	7.34	↓	2410	↓	↓	1A,1B/.28	2A,2C/.54	0	0.82	↓	↓
224	↓	352.47	7.25	↓	3300	↓	↓	1A,1B/.36	2A,2C/ 57	0	0 93	↓	↓
249	90	197.22	7.25	1000	3000	36.6	0°	0	0	0	0	No	Optimization
257	↓	206.22	↓	↓	↓	↓	↓	1A,1B/.48	0	0	0.48	2	↓
265	↓	212.52	↓	↓	↓	↓	↓	1A,1B/.49	4/.05	0	0.54	↓	↓
273	↓	217.02	↓	↓	↓	↓	↓	1A,1B/.48	1C,4/.34	0	0.82	↓	↓
281	↓	230.52	↓	↓	↓	↓	↓	1A,1B/.26	1C,4/.51	0	0.77	↓	↓
289	↓	235.02	↓	↓	↓	↓	↓	1A,1B/.79	1C,4/1.19	0	1.98	↓	Inlet unstarted
297	↓	246.72	↓	↓	↓	↓	↓	1A/.51	0	0	0.51	↓	↓
305	↓	247.62	↓	↓	↓	↓	↓	1A/.55	0	0	0 55	↓	↓
313	91	175.65	7.25	1000	3100	36 6	3°	1A,1B/.39	0	0	0.39	2	Angle of attack
321	↓	180.15	↓	↓	↓	↓	↓	1A,1B/.47	0	0	0.47	2	↓
329	↓	186.45	↓	↓	↓	↓	↓	0	0	0	0	No	↓
337	↓	190.05	↓	↓	↓	↓	↓	1A,1B/.51	4/.13	0	0.64	2	↓
345	↓	203.55	↓	↓	↓	↓	↓	1A,1B/.52	0	0	0.52	↓	↓
353	↓	216.15	↓	↓	↓	↓	↓	1B/.27	4,2C/.34	0	0 61	↓	↓
361	↓	224.25	↓	↓	↓	↓	↓	1B/.28	4,2C/ 50	0	0 78	↓	↓
369	↓	226 95	↓	↓	↓	↓	↓	1B/ 28	4,2C/.45	0	0.73	↓	↓
377	↓	229.65	↓	↓	↓	↓	↓	1B/.33	4,2C/.39	0	0.72	↓	↓
385	↓	235.95	↓	↓	↓	↓	↓	1B/.29	2C/.41	0	0.70	↓	↓
393	92	186.87	7.38	1000	2050	36.6	0°	0	0	0	0	No	Supersonic combustion
401	↓	205.77	7.29	↓	2850	↓	↓	1A,1B/.48	4,2C/.34	0	0.72	2	with instrumentation rig, gas sampling and O_2
409	↓	227.37	↓	↓	↓	↓	↓	1A,1B/.50	4,2C/.43	0	0.93	↓	content effect
417	↓	248.07	↓	↓	↓	↓	↓	1B/.33	4,2C/.58	0	0.91	↓	↓
425	↓	290.37	7.25	↓	3000	↓	↓	1A,1b/.47	4,2C/.55	0	1.12	↓	↓
433	↓	312.87	7.25	↓	3000	↓	↓	1A,1B/.36	4,2C/.49	0	0.85	↓	↓

*Reference 11

** Recomputations were made with surface pressure substitutions

Table 5. - Continued.

(d) Mach 5 component integration and engine performance results.

Page* No.	Reading Number	Time	H_o	P_{T_o}, psia	P_{T_o}, ^oR	X_{CL}, in.	α	Inj $1/\phi_1$	Inj $2/\phi_2$	Inj. $3/\phi_3$	ϕ_T	Ignitors 1, 2, 3	Purpose & Remarks
54	93	134.03	5.1	420	2100	35.2	0°	0	0	0	0	No	No fuel injection
62		142.13						0	2A/.29	0	0 29	2	2nd stage only
70		150.23						0	2A/.31	3A,3B/.25	0 56		Subsonic combustion
78		158.33						0	0	3A,3B/.60	0.60		and 0_2 content effect
86		162.83						0	0	3A,3B/ 71	0.71		
94		174.53						0	0	3A,3B/ 49	0.49		
102		182.63						0	0	3A,3B/.35	0.35		
110	94	134.14	5.1	420	2230	35 2	0°	0	0	0	0	No	Subsonic combustion
118		140 44						0	2A/ 49	0	0 49	2	
126		150 34						0	2A/.49	3A,3B/.47	0 96		
134		157.54						0	0	3A,3B/1.03	1 03		
142		163 84						0	0	3A,3B/1 19	1 19		
150		180 04						0	0	3A,3B/ 59	0 59		
158		214 24		300	2940			0	2A/ 53	0	0 53		Effect of T_{TO}
166		215.14						0	2A/.53	0	0 53		High test cell and AIM nozz. pressures
174		218.74						0	2A/.54	3A,3B/.5	1.04		
183		231.34						1A,1B/ 15	0	0	0.15		
191		233 14						1A,1B/ 25	0	0	0.25		
199		234 04						1A,1B/.27	0	0	0.27		
207	95	129.55	5.2	300	2430	35.2	0°	0	0	0	0	No	Supersonic combustion
215		140 35	5.1		3080			1A,1B/.16	0	0	0.16	2	
223		160 15			2940			1A,1B/.18	2A,2C/.68	0	0.86		
231		169.15						1A,1B/.19	2A,2C/.83	0	1.02		
239		189 85						0	2A,2C/ 99	0	0 99		
247		196.15						0	2A,2C/.86	0	0.86		
255		204.25						0	2A,2C/.71	0	0 71		
263		211.45						0	2A,2C/.58	0	0.58		
271		217.75						0	2A,2C/.70	0	0.70		
279		228 55						1A,1B/.22	2A,2C/.63	0	0.85		
287		241 15		320	2800			0	0	0	0	No	
295		252.85						1A,1B/.18	2A,2C/.70	0	0.88	2	
303		289.75		310	2890			0	2A,2C/.86	0	0.86		AIM nozz. press. high
311		310.45		420	2230			0	2A,2C/.66	0	0 66		Effect of T_{TO}
319		317 65		420	2230			0	2A,2C/.51	0	0.51		
327	96	134 44	5.1	420	2230	35 2	3°	0	0	0	0	No	Angle of attack perform-
336		141 64						0	2A/ 38	0	0 38	2	ance
344		150.64						0	2A/.45	3A,3B/.38	0 83		
352		165 94						0	0	3A,3B/.87	0 87		
360		172 24						0	0	3A,3B/.59	0 59		
368		180 34						0	0	3A,3B/.43	0 43		
376		244.24		300	2925			0	0	0	0	No	
384		264 04		420	2230			1A,1B/.10	0	0	0.10	2	Fuel flow meas. malfunction; 1A flow only indicated
392		274.84						1A,1B/.21	0	0	0 21	2	
400		275.74						1A,1B/.20	0	0	0 20	2	
408		294.64						0	0	0	0	No	
417		313.54						0	0	3A,3B/.77	0.77	2	High test cell and AIM nozz. pressures

*Reference 12

Table 5. - Concluded.

(d) Concluded.

Page No.*	Reading Number	Time	M_o	P_{T_o}, psia	P_{T_o}, °R	X_{CL}, in.	α	Inj.1/ϕ_1	Inj.2/ϕ_2	Inj.3/ϕ_3	ϕ_T	Ignitors 1, 2, 3	Purpose & Remarks
425	97	135.71	5.1	210	2100	35.2	0°	0	0	0	0	No	Subsonic combustion with
433		156.41			2200			0	2A/.51	3A,3B/.49	0.90	2	instrumentation rig and
442		160.91						0	2A/.32	3A,3B/.24	0.56		gas sampling probes
451		182.51						0	0	3A,3B/.50	0.50		
459		201.41						0	0	3A,3B/.67	0.67		
467		224.81						0	0	3A,3B/ 86	0.86		
476		252.71		420				0	2A/.50	3A,3B/.43	0.93		
485		271 61						0	2A/.43	3A,3B/.34	0.77		
494		295.91						0	0	3A,3B/ 74	0.74		
502		317.51						0	0	3A,3B/.90	0.90		
510		322.01						0	0	3A,3B/1.07	1.07		High test cell and
518		325.61						0	0	3A,3B/1.08	1.08		AIM nozz. pressures

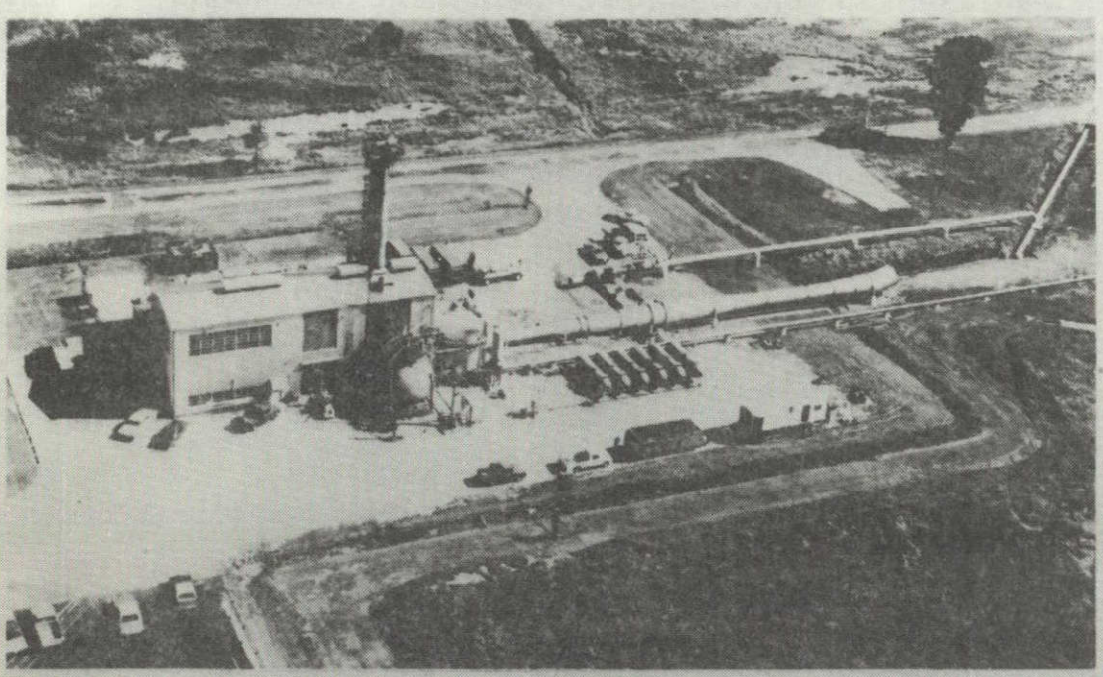
*Reference 12

Table 6. - Instrumentation code-outs for HRE/AIM performance computations.

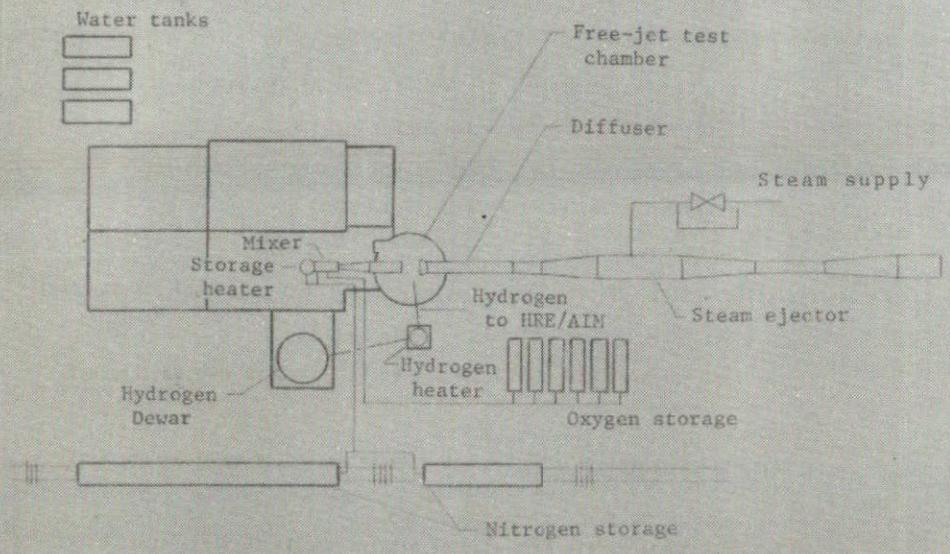
```
C033    0000000 PROCDEF C033
C033    0000100 KDOSEL   60, 65, 67, 83, 84, 85, 86, 87, 88, 91, 92,123,124,148,154,156,158,160,162,164
C033    0000200 KDOSEL 165,166,168,171,172,174,175,176,180,181,182,183,186,191,206
C033    0000300 KDOSEL 208,212,226,228,230,231,236,239,240,241,244,248,249,290,292
C033    0000400 KDOSEL 305,306,307,308,309,310,311,312,313,314,315,316,317,318,319
C033    0000500 KDOSEL 320,321,322,323,324,325,326,327,328,329,330,331,332,333,334
C033    0000600 KDOSEL 335,336,337,338
C033    0000700 KDOSEL 399
C033    0000800 QUALIFY AINLETT
C033    0000900 AT 3(2);SET VAL(11,INITRO)=.73448,VAL(11,!OXY)=.26552;DISPLAY VAL(11,INITRO),VAL(11,!OXY)
C033    0001000 QUALIFY STAPRS
C033    0001100 AT 320(2);DISPLAY 'INPUT PSI(1,1), THEN TYPE GO'
C034    0000000 PROCDEF C034
C034    0000100 KDOSEL   60, 65, 67, 84, 85, 86, 87, 88, 92,123,124,148,154,156,158,160,162,164
C034    0000200 KDOSEL 166,168,171,172,174,176,180,181,182,183,186,191,195,199,201
C034    0000300 KDOSEL 206,208,212,226,228,230,231,236,240,241,244,248,249,252,290,292
C034    0000400 KDOSEL 305,306,307,308,309,310,311,312,313,314,315,316,317,318,319
C034    0000500 KDOSEL 320,321,322,323,324,325,326,327,328,329,330,331,332,334,335
C034    0000600 KDOSEL 336,337,338
C034    0000700 KDOSEL 399
C034    0000800 QUALIFY AINLETT
C034    0000900 AT 3(2);SET VAL(11,INITRO)=.73448,VAL(11,!OXY)=.26552;DISPLAY VAL(11,INITRO),VAL(11,!OXY)
C036    0000000 PROCDEF C036
C036    0000100 KDOSEL  60, 65, 66, 67,123,124,144,154,156,158,160,162,164,166,168,171,172,174,181
C036    0000200 KDOSEL 182,186,191,195,199,206,208,218,228,230,231,236,240,241,244
C036    0000300 KDOSEL 248,249,252,289,290,292,294,305,310,312,313,314,315,320
C036    0000400 KDOSEL 399
C036    0000500 QUALIFY AINLETT
C036    0000600 AT 3(2),SET VAL(11,INITRO)=.73448,VAL(11,!OXY)=.26552;DISPLAY VAL(11,INITRO),VAL(11,!OXY)
C038    0000000 PROCDEF C038
C038    0000100 KDOSEL  60, 65, 66, 67,123,124,144,154,168,174,181,182,186,191,195,199,201,206,228
C038    0000200 KDOSEL 230,231,236,240,241,244,248,249,252,290,292,294,305,310,312,313
C038    0000300 KDOSEL 314,315,319,320
C038    0000400 KDOSEL 399
C038    0000500 QUALIFY AINLETT
C038    0000600 AT 3(2),SET VAL(11,INITRO)=.73448,VAL(11,!OXY)=.26552;DISPLAY VAL(11,INITRO),VAL(11,!OXY)
C038    0000700 QUALIFY STAPRS
C038    0000800 AT 320(2),DISPLAY 'INPUT PSI(1,1), THEN TYPE GO'
C052    0000000 PROCDEF C052
C052    0000100 KDOSEL  65, 66, 67,124,137,139,141,158,165,168,178,181,182,195,199,200,201,206,208
C052    0000200 KDOSEL 226,230,249,252,289,290,292,294,305,313,314,315,320,329,399
C052    0000400 QUALIFY AINLETT
C052    0000500 AT 3(2),SET VAL(11,INITRO)=.73448,VAL(11,!OXY)=.26552;DISPLAY VAL(11,INITRO),VAL(11,!OXY)
C054    0000000 PROCDEF C054
C054    0000100 KDOSEL  65, 66, 67,124,137,139,141,156,165,168,178,181,182,195,199,200,201,206,226,230
C054    0000200 KDOSEL 249,252,268,289,290,292,294,305,313,314,315,319,320,329,399
C054    0000400 QUALIFY AINLETT
C054    0000500 AT 3(2);SET VAL(11,INITRO)=.73448,VAL(11,!OXY)=.26552;DISPLAY VAL(11,INITRO),VAL(11,!OXY)
C057    0000000 PROCDEF C057
C057    0000100 KDOSEL  62, 65, 66, 74,124,137,139,158,160,168,172,179,181,182,183,187,190,195,199
C057    0000200 KDOSEL 201,206,226,230,248,249,252,289,290,292,294,305,313,314,315,320,321
C057    0000300 KDOSEL 329
C057    0000400 KDOSEL 399
C057    0000500 QUALIFY AINLETT
C057    0000600 AT 3(2),SET VAL(11,INITRO)=.73613,VAL(11,!OXY)=.26387,DISPLAY VAL(11,INITRO),VAL(11,!OXY)
C060    0000000 PROCDEF C060
C060    0000100 KDOSEL  62, 65, 66, 74,124,137,139,158,160,168,172,179,181,182,183,187,190,195,199
C060    0000200 KDOSEL 201,206,226,230,248,249,252,289,290,292,294,305,313,314,315,319,320
C060    0000300 KDOSEL 321,329
C060    0000400 KDOSEL 399
C060    0000500 QUALIFY AINLETT
C060    0000600 AT 3(2);SET VAL(11,INITRO)=.73613,VAL(11,!OXY)=.26387;DISPLAY VAL(11,INITRO),VAL(11,!OXY)
C061    0000000 PROCDEF C061
C061    0000100 KDOSEL  62, 65, 66, 74,124,137,139,158,160,168,172,179,181,182,183,187,190,195,199
C061    0000200 KDOSEL 201,206,226,230,248,249,252,289,290,292,294,305,313,314,315,319,320
C061    0000300 KDOSEL 321,329
C061    0000400 KDOSEL 399
C061    0000500 QUALIFY AINLETT
C061    0000600 AT 3(2);SET VAL(11,INITRO)=.73928,VAL(11,!OXY)=.26072,DISPLAY VAL(11,INITRO),VAL(11,!OXY)
C063    0000000 PROCDEF C063
C063    0000100 KDOSEL  62, 65, 66, 74,124,137,139,158,160,168,172,179,181,182,183,187,190,195,197
C063    0000200 KDOSEL 199,201,206,226,230,248,249,252,289,290,292,294,305,313,314,315,319
C063    0000300 KDOSEL 320,321,329
C063    0000400 KDOSEL 399
C063    0000500 QUALIFY AINLETT
C063    0000600 AT 3(2);SET VAL(11,INITRO)=.7724,VAL(11,!OXY)=.2276;DISPLAY VAL(11,INITRO),VAL(11,!OXY)
C064    0000000 PROCDEF C064
C064    0000050 KDOSEL  62, 65, 66, 74
C064    0000100 KDOSEL 124,137,139,148,158,160,168,172,179,181,182,183,187,190,195
C064    0000200 KDOSEL 197,199,201,206,226,230,248,249,252,289,290,292,294,305,313,314,315
C064    0000300 KDOSEL 319,320,321,329,399
C064    0000400 QUALIFY AINLETT
C064    0000500 AT 3(2);SET VAL(11,INITRO)=.76751,VAL(11,!OXY)=.23249,DISPLAY VAL(11,INITRO),VAL(11,!OXY)
C065    0000000 PROCDEF C065
C065    0000100 KDOSEL  62, 65, 66, 74,137,139,181,182,183,187,188,190,195,197,199,201,206,226,230
C065    0000200 KDOSEL 248,252,289,290,292,294,305,313,314,315,320,321,329,399
C065    0000400 QUALIFY AINLETT
C065    0000500 AT 3(2);SET VAL(11,INITRO)=.76751,VAL(11,!OXY)=.23249;DISPLAY VAL(11,INITRO),VAL(11,!OXY)
C069    0000000 PROCDEF C069
C069    0000100 KDOSEL  62, 65, 66, 74,137,139,181,182,183,187,190,195,197,199,201,206,226,230,248,252
C069    0000200 KDOSEL 289,290,292,294,305,313,314,315,320,321,322,329,399
C069    0000400 QUALIFY AINLETT
C069    0000500 AT 3(2),SET VAL(11,INITRO)=.76479,VAL(11,!OXY)=.23521;DISPLAY VAL(11,INITRO),VAL(11,!OXY)
```

Table 6. - Concluded.

```
C071    0000000 PROCDEF C071
C071    0000100 KDOSEL  53, 62, 65, 66, 74,124,137,139,158,160,172,179,181,182,183,187,190,195,197,199
C071    0000200 KDOSEL 201,206,226,230,248,249,252,289,290,292,294,305,313,314,315,320,321,322,329,399
C071    0000500 QUALIFY AINLETT
C071    0000600 AT 3(2);SET VAL(11,INITRO)=.75452,VAL(11,IOXY)=.24548;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C088    0000000 PROCDEF C088
C088    0000100 KDOSEL  19, 22, 23, 54, 55, 60, 62, 64, 67, 74, 95,124,137,139,157,158,160
C088    0000200 KDOSEL 162,165,166,169,170,171,172,173,174,175,176,177,178,179,181
C088    0000300 KDOSEL 182,183,187,190,195,197,199,206,226,227,230,235,241,248,249
C088    0000400 KDOSEL 250,252,278,289,290,292,294,305,313,314,315,320,321,329,349
C088    0000500 KDOSEL 353,366,367,368,369,370,374,375,378,379,382,388,394,395,399
C088    0000800 QUALIFY AINLETT
C088    0000900 AT 3(2);SET VAL(11,INITRO)=.75328,VAL(11,IOXY)=.24672;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C088    0001000 QUALIFY ANOZ
C088    0001100 AT 360(3);SET DRAGEX=-0.5*Q0AC;DISPLAY DRAGEX,DRAGEX*PSIATM,'DRAGEX = -0.5*Q0*AC'
C088    0001200 QUALIFY CONVTA
C088    0001300 AT 0;SET MV(65)=MV(53),MV(66)=MV(53);DISPLAY MV(53),MV(65),MV(66)
C088    0001400 SETPS 123,0.690
C089    0000000 PROCDEF C089
C089    0000100 KDOSEL  54, 55, 60, 62, 64, 67, 74, 95,124,137,139,157,158,160,165,166,169
C089    0000200 KDOSEL 172,175,176,179,181,182,183,187,190,195,197,199
C089    0000300 KDOSEL 210,223,224,226,227,230,235,248,249,250,252,289,290,292,294
C089    0000400 KDOSEL 305,313,320,321,329,399
C089    0000600 QUALIFY AINLETT
C089    0000700 AT 3(2);SET VAL(11,INITRO)=.75148,VAL(11,IOXY)=.24852;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C089    0000800 QUALIFY CONVTA
C089    0000900 AT 0;SET MV(65)=MV(53),MV(66)=MV(53);DISPLAY MV(53),MV(65),MV(66)
C089    0001000 SETPS 123,0.690
C090    0000000 PROCDEF C090
C090    0000100 KDOSEL  54, 55, 60, 62, 64, 67, 74,124,137,139,157,158,160,165,172,175,176
C090    0000200 KDOSEL 179,181,182,183,187,190,195,197,199,202,203,206,207
C090    0000300 KDOSEL 208,210,215,224,226,227,230,235,248,249,250,252,273,289,290
C090    0000400 KDOSEL 292,294,305,313,314,315,320,321,329
C090    0000500 KDOSEL 399
C090    0000600 QUALIFY AINLETT
C090    0000700 AT 3(2);SET VAL(11,INITRO)=.7389,VAL(11,IOXY)=.2611;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C090    0000800 QUALIFY CONVTA
C090    0000900 AT 0;SET MV(65)=MV(53),MV(66)=MV(53);DISPLAY MV(53),MV(65),MV(66)
C091    0000000 PROCDEF C091
C091    0000100 KDOSEL  54, 55, 60, 62, 64, 67, 74, 96,124,137,139,148,157,158,160,165,172
C091    0000200 KDOSEL 175,176,179,181,182,183,187,190,195,197,199,206,208
C091    0000300 KDOSEL 226,227,230,235,248,249,250,252,289,290,292,294,305,313
C091    0000400 KDOSEL 314,315,320,321,329,399
C091    0000600 QUALIFY AINLETT
C091    0000700 AT 3(2);SET VAL(11,INITRO)=.7389,VAL(11,IOXY)=.2611;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C091    0000800 QUALIFY ENGPGM
C091    0000900 SET ALPHA=3.0;DISPLAY ALPHA
C091    0001000 QUALIFY CONVTA
C091    0001100 AT 0;SET MV(65)=MV(61),MV(66)=MV(61);DISPLAY MV(61),MV(65),MV(66)
C091    0001200 SETPS 123,0.690
C092    0000000 PROCDEF C092
C092    0000100 KDOSEL  54, 55, 60, 62, 64, 67, 74,137,139,148,175,176,181,182,183,187,190,195
C092    0000200 KDOSEL 197,199,206,208,226,227,230,232,248,252,265,266
C092    0000300 KDOSEL 267,268,270,271,272,289,290,292,294,305
C092    0000400 KDOSEL 313,314,315,320,321,329,399
C092    0000500 QUALIFY ANOZ
C092    0000600 AT 360(3);SET DRAGEX=-0.5*Q0AC;DISPLAY DRAGEX,DRAGEX*PSIATM,'DRAGEX = -0.5*Q0*AC'
C092    0000700 QUALIFY CONVTA
C092    0000800 AT 0;SET MV(65)=MV(53),MV(66)=MV(53);DISPLAY MV(53),MV(65),MV(66)
C093    0000000 PROCDEF C093
C093    0000100 COMACH5
C093    0000200 KDOSEL 96
C093    0000500 QUALIFY AINLETT
C093    0000600 AT 3(2);SET VAL(11,INITRO)=.655704,VAL(11,IOXY)=.344296;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C093    0000700 TUNNOPT 3
C094    0000000 PROCDEF C094
C094    0000100 COMACH5
C094    0000600 QUALIFY AINLETT
C094    0000700 AT 3(2);SET VAL(11,INITRO)=.76284,VAL(11,IOXY)=.23716;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C094    0000800 TUNNOPT 3
C095    0000000 PROCDEF C095
C095    0000100 COMACH5
C095    0000600 QUALIFY AINLETT
C095    0000700 AT 3(2);SET VAL(11,INITRO)=.7486,VAL(11,IOXY)=.25138;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C095    0000800 TUNNOPT 3
C096    0000000 PROCDEF C096
C096    0000100 COMACH5
C096    0000600 QUALIFY AINLETT
C096    0000700 AT 3(2);SET VAL(11,INITRO)=.76488,VAL(11,IOXY)=.23512;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C096    0000800 TUNNOPT 3
C097    0000000 PROCDEF C097
C097    0000100 KDOSEL  54, 55, 60, 62, 64, 65, 66, 67, 74,124,137,139,181,182,183,187,190,195,197
C097    0000200 KDOSEL 199,226,230,248,252,280,289,290,292,294,305,313,314,315,320,321,329,399
C097    0000500 QUALIFY AINLETT
C097    0000600 AT 3(2);SET VAL(11,INITRO)=.77086,VAL(11,IOXY)=.22914;DISPLAY VAL(11,INITRO),VAL(11,IOXY)
C097    0000700 QUALIFY ANOZ
C097    0000800 AT 360(3);SET DRAGEX=-0.5*Q0AC;DISPLAY DRAGEX,DRAGEX*PSIATM,'DRAGEX = -0.5*Q0*AC'
C097    0000900 TUNNOPT 3
C097    0001000 QUALIFY ACMBSTR
C097    0001100 AT 350(3);SET XCTP=XCT;DISPLAY XSLE,XCT,XCTP,XSTE,'SUBSONIC COMBUSTION'
COMACH5 0000000 PROCDEF COMACH5
COMACH5 0000100 KDOSEL  54, 55, 60, 62, 64, 65, 66, 67, 74,124,137,139,157,158,160,162,165,172,176,179
COMACH5 0000200 KDOSEL 181,182,183,187,190,195,197,199,206,226,230,248,249,252,280,289,290,292,294,305
COMACH5 0000300 KDOSEL 313,314,315,320,321,329,399
```

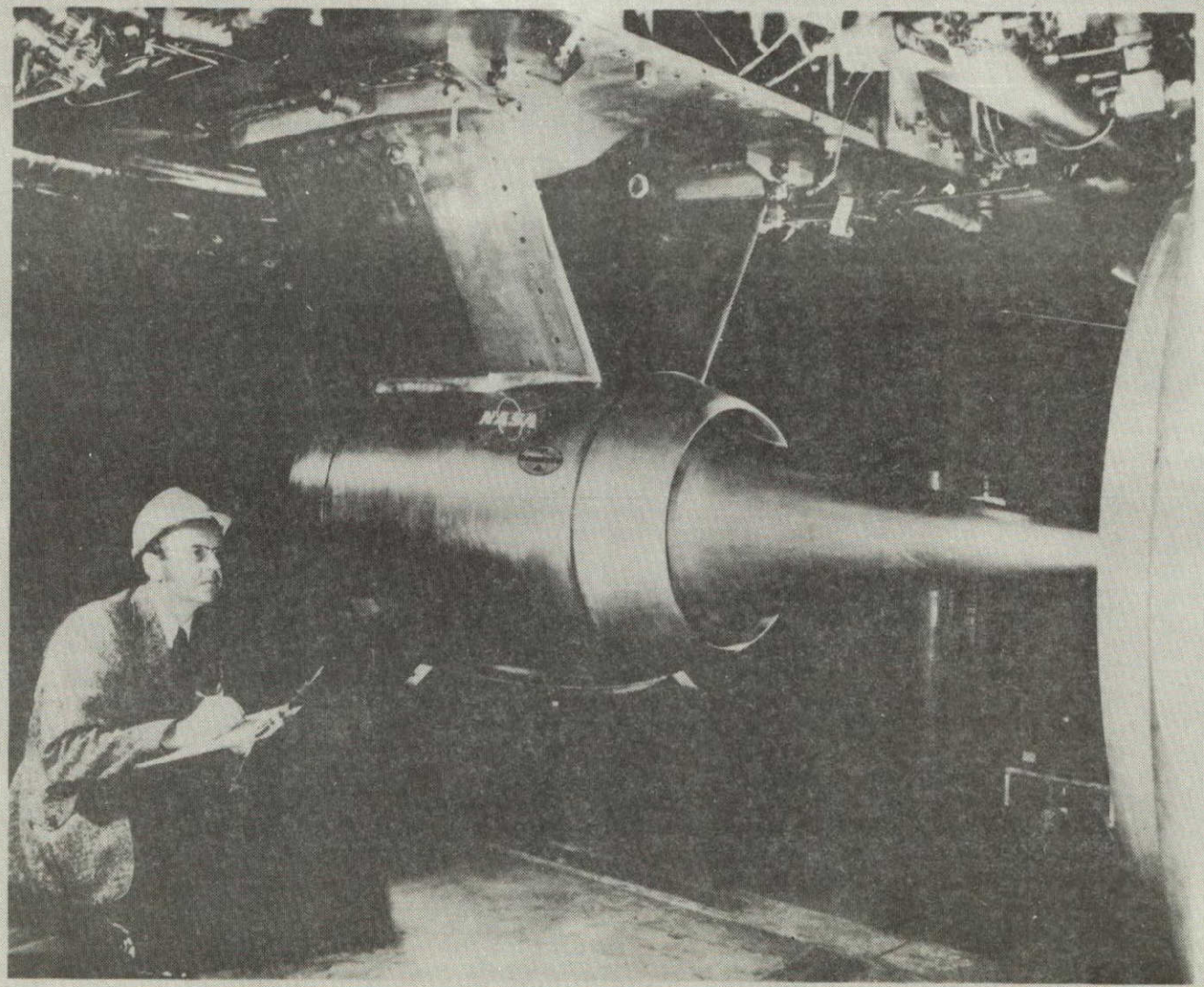


(a) Hypersonic Tunnel Facility (HTF).



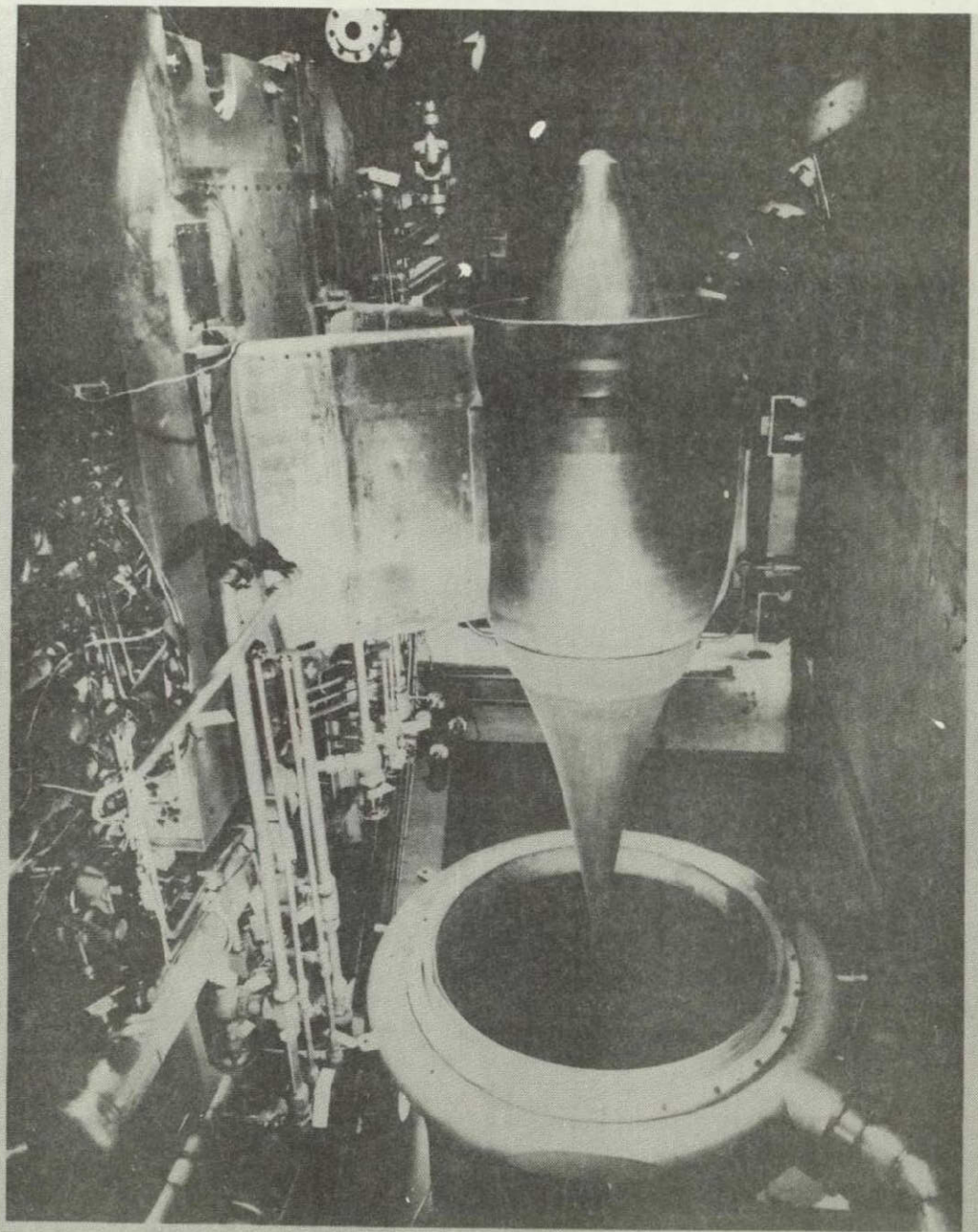
(b) Schematic layout of the NASA - Lewis - Plum Brook Hypersonic Tunnel Facility(HTF).

Figure 1. - NASA - Lewis Research Center's Plum Brook Station Hypersonic Tunnel Facility (HTF) and the Hypersonic Research Engine/ Aerothermodynamic Integration Model (HRE/AIM) installation.

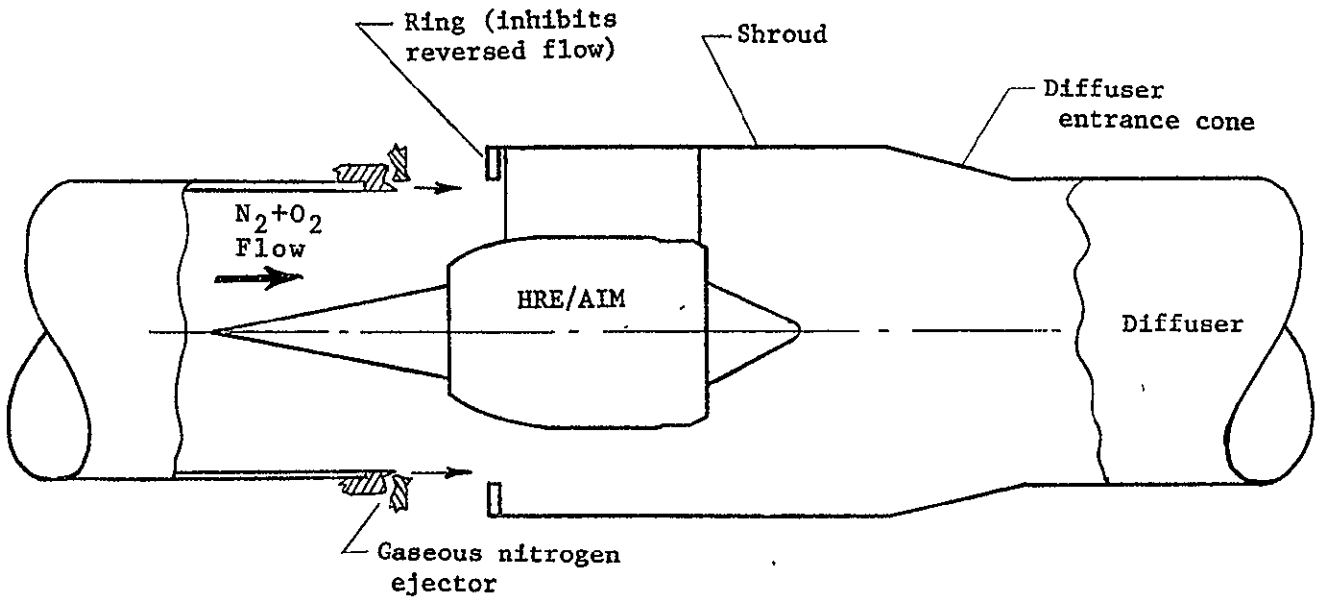


(c) HRE/AIM partically installed; pretest.

Figure 1. - Continued.



(d) HRE/AIM partically installed; Mach 5, 6, and 7 post test.



(e) Schematic of HRE/AIM test section located in the free-jet test chamber of the HTF.

Figure 1. - Concluded.

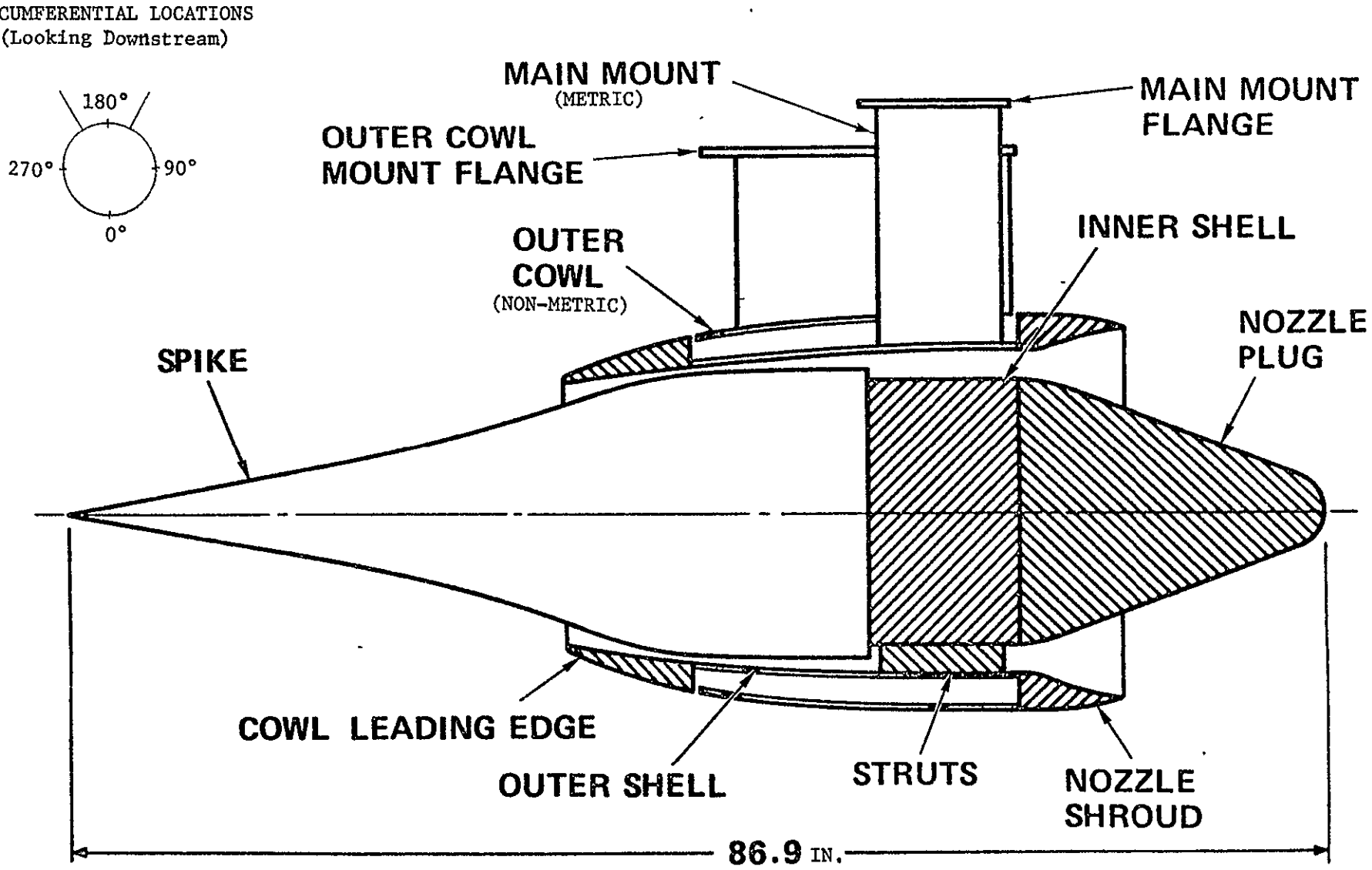
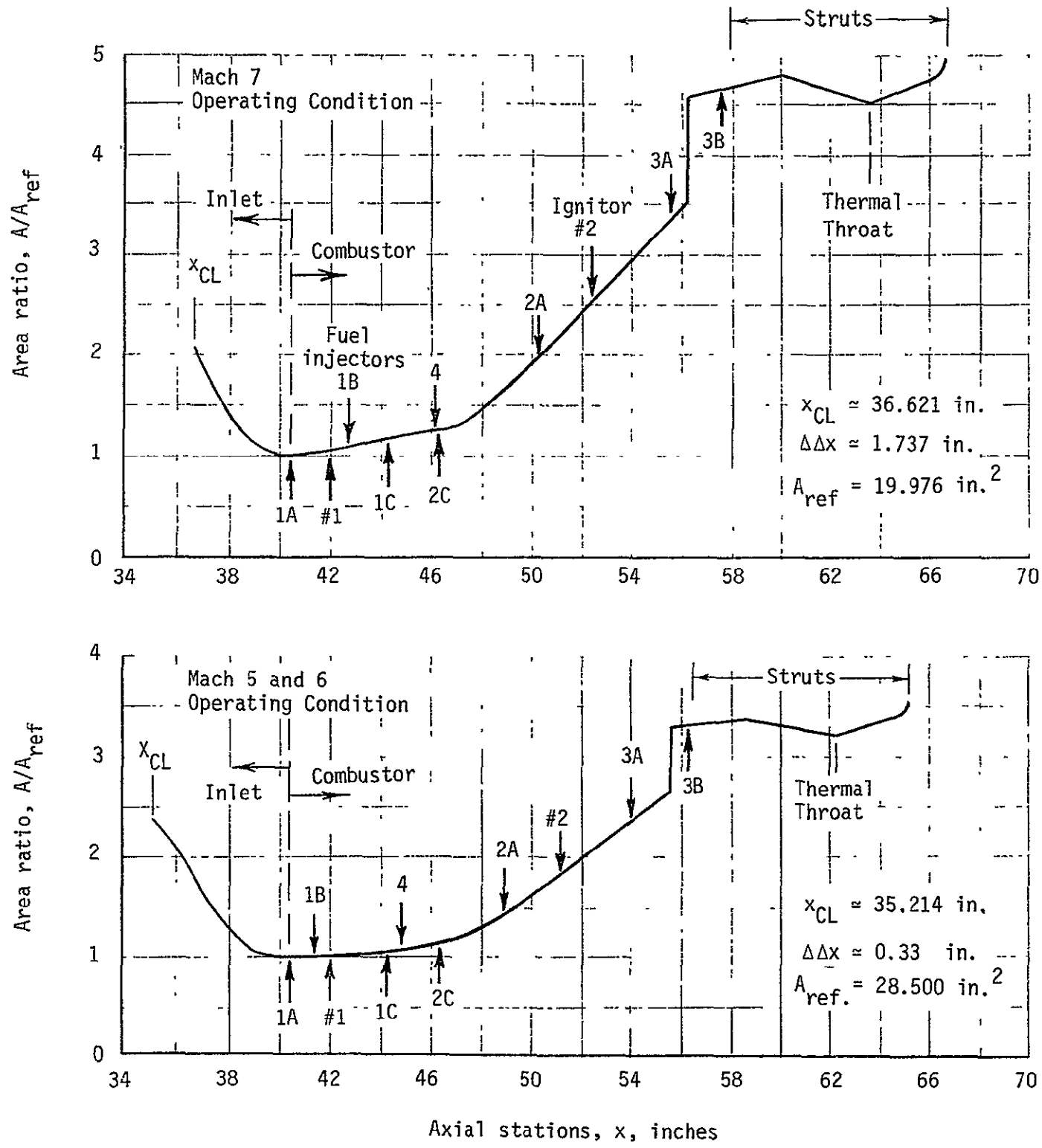


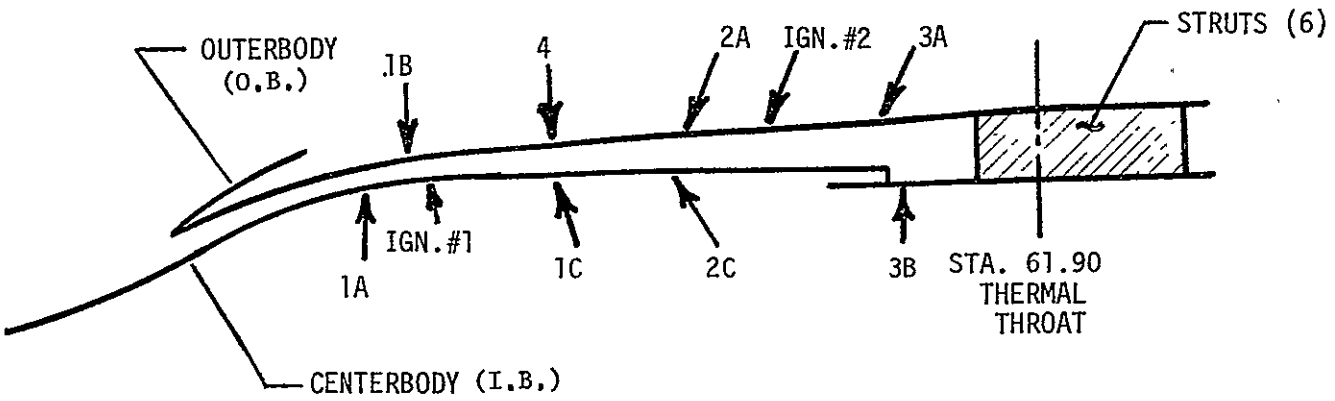
Figure 2. - General Configuration of the AIM



(a) Combustor area ratio distributions

Figure 3. - HRE/AIM combustor information.

COMBUSTOR CONFIGURATION



INJECTOR PARAMETERS
(Mach 6 position, x_{CL} = 34.884 in.)

Injector	Number of Injectors	Diameter, in.	Injection Angle[a], deg.	S/d	x, in.	Location
1A	37	0.119	90	13.1	40.5	I.B.
1B	37	0.119	90	13.9	41.25	O.B.
1C	37	0.119	106	13.5	44.5	I.B.
4	37	0.119	90	14.2	44.5	O.B.
2A	60	0.095	67	11.4	48.5	O.B.
2C	60	0.095	119	10.6	46.5	I.B.
3A	114	0.090	65	7.0	53.75	O.B.
3B	102	0.095	90	6.3	55.9	I.B.

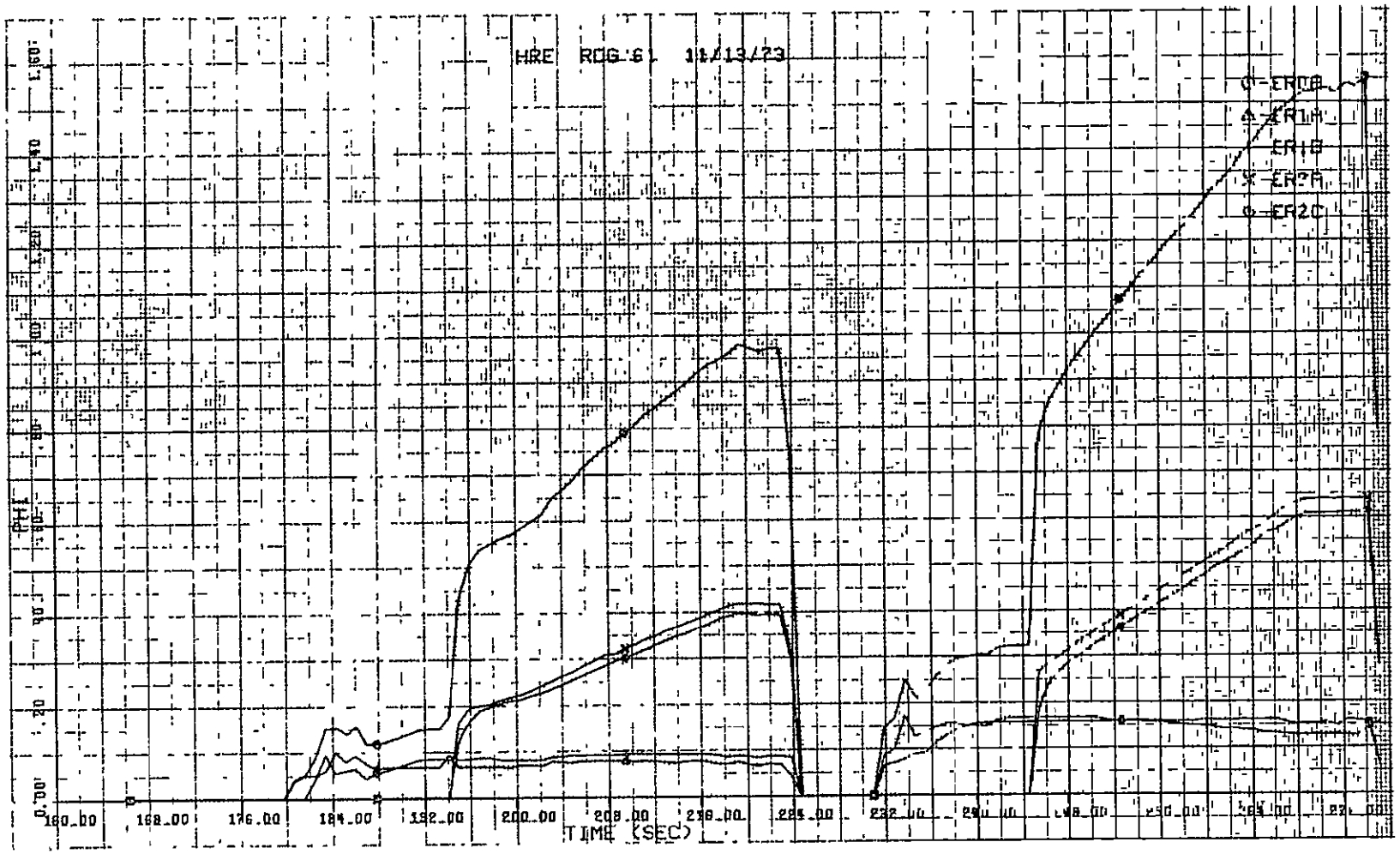
IGNITOR PARAMETERS

Ignitor	x, in.	Circumferential locations						Injection Angle[a], deg.	Location
1[c]	42.00	55	110	165	230	290	350	94.5	I.B.
2	50.98	40	100	-	220	240	280	60.0[b]	O.B.

a. With respect to AIM centerline.
b. Also looking upstream, ignitors #2 are inclined 30° clockwise.
c. Plug welded prior to reading 57.

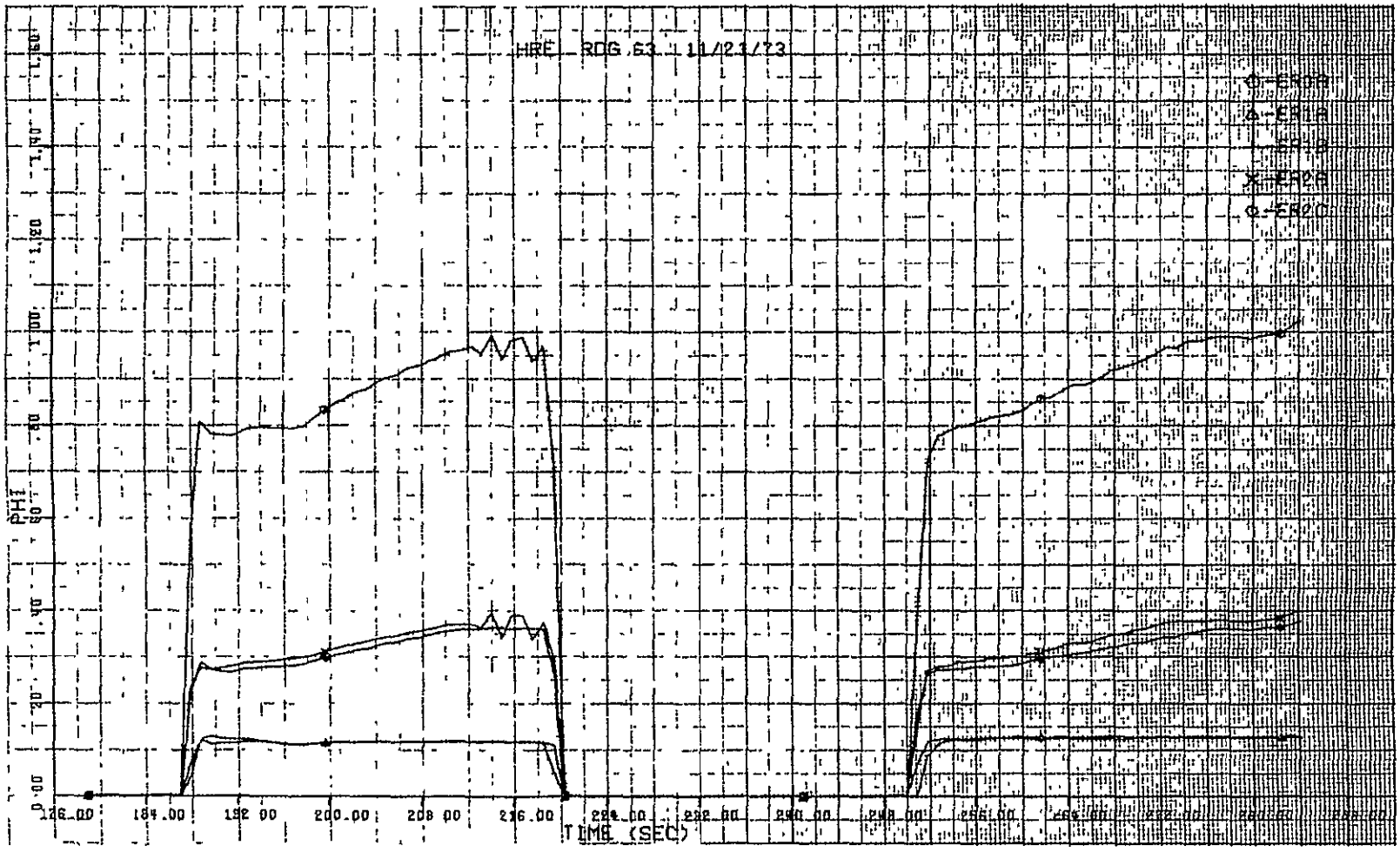
(b) Combustor configuration and parameters.

Figure 3. - Concluded.



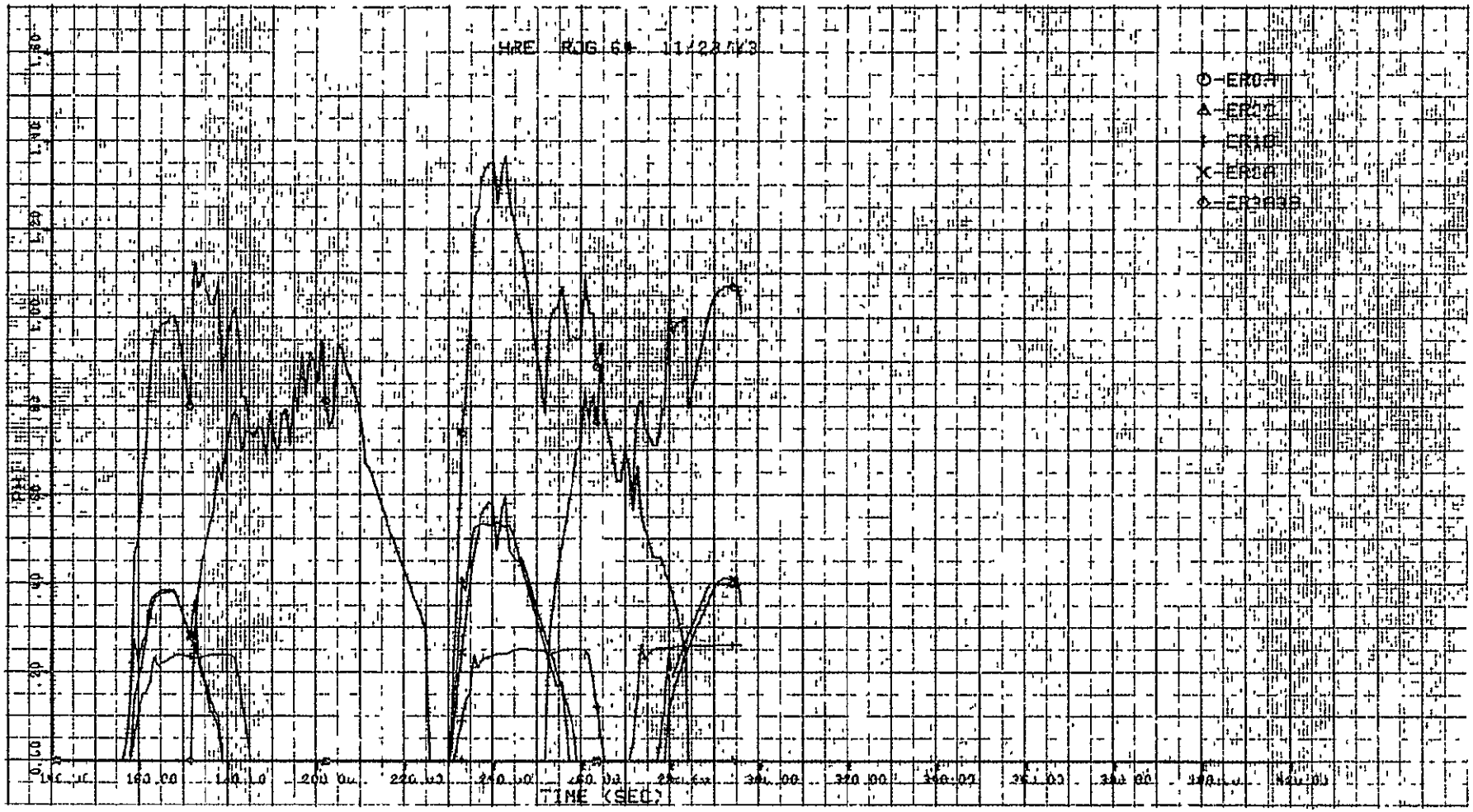
(a) Reading 61 - Measured Equivalence Ratio, ϕ

Figure 4. - HRE/AIM fuel equivalence ratio;
Mach 6 engine performance results.



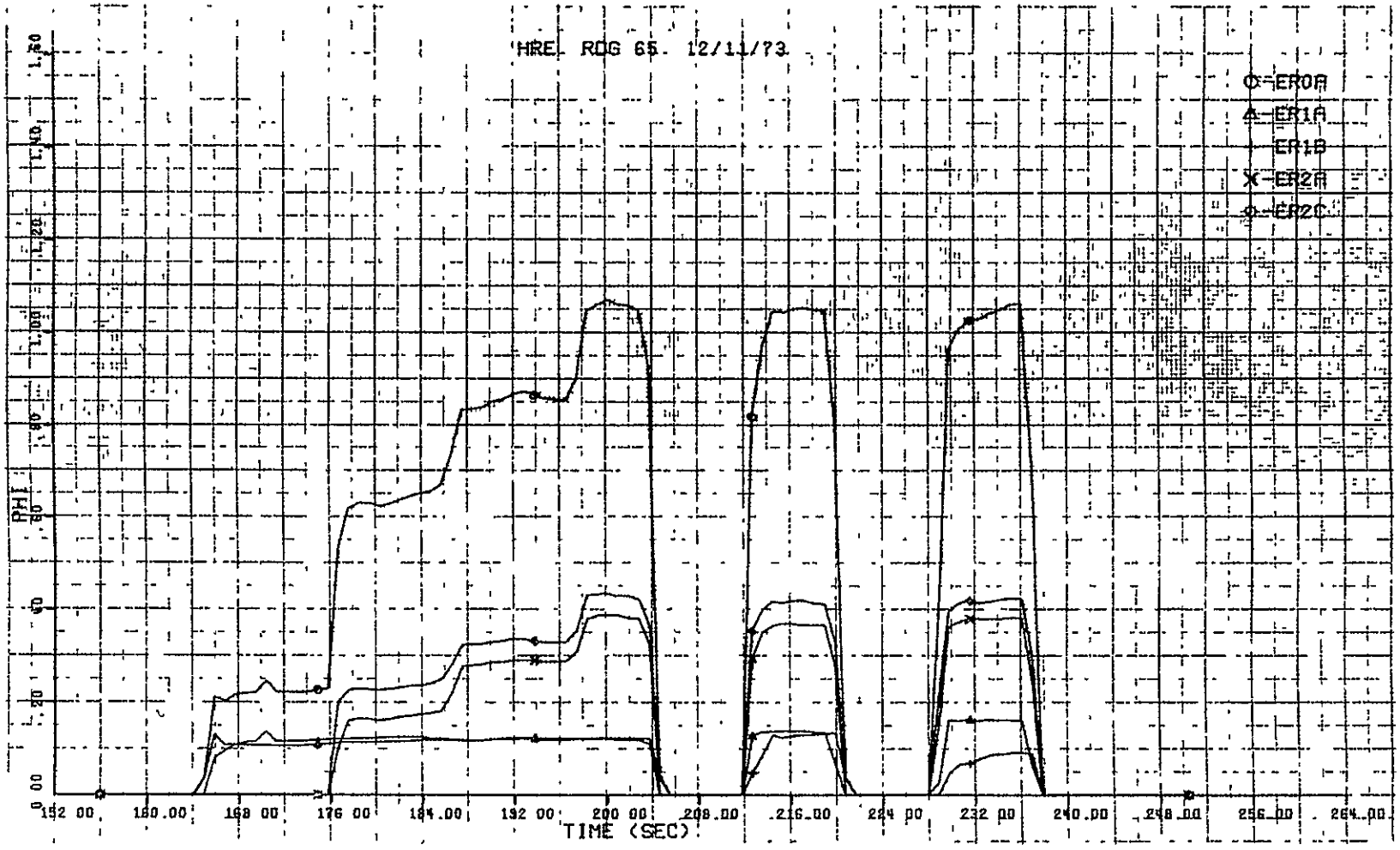
(b) Reading 63 - Measured Equivalence Ratio, ϕ

Figure 4. - Continued.



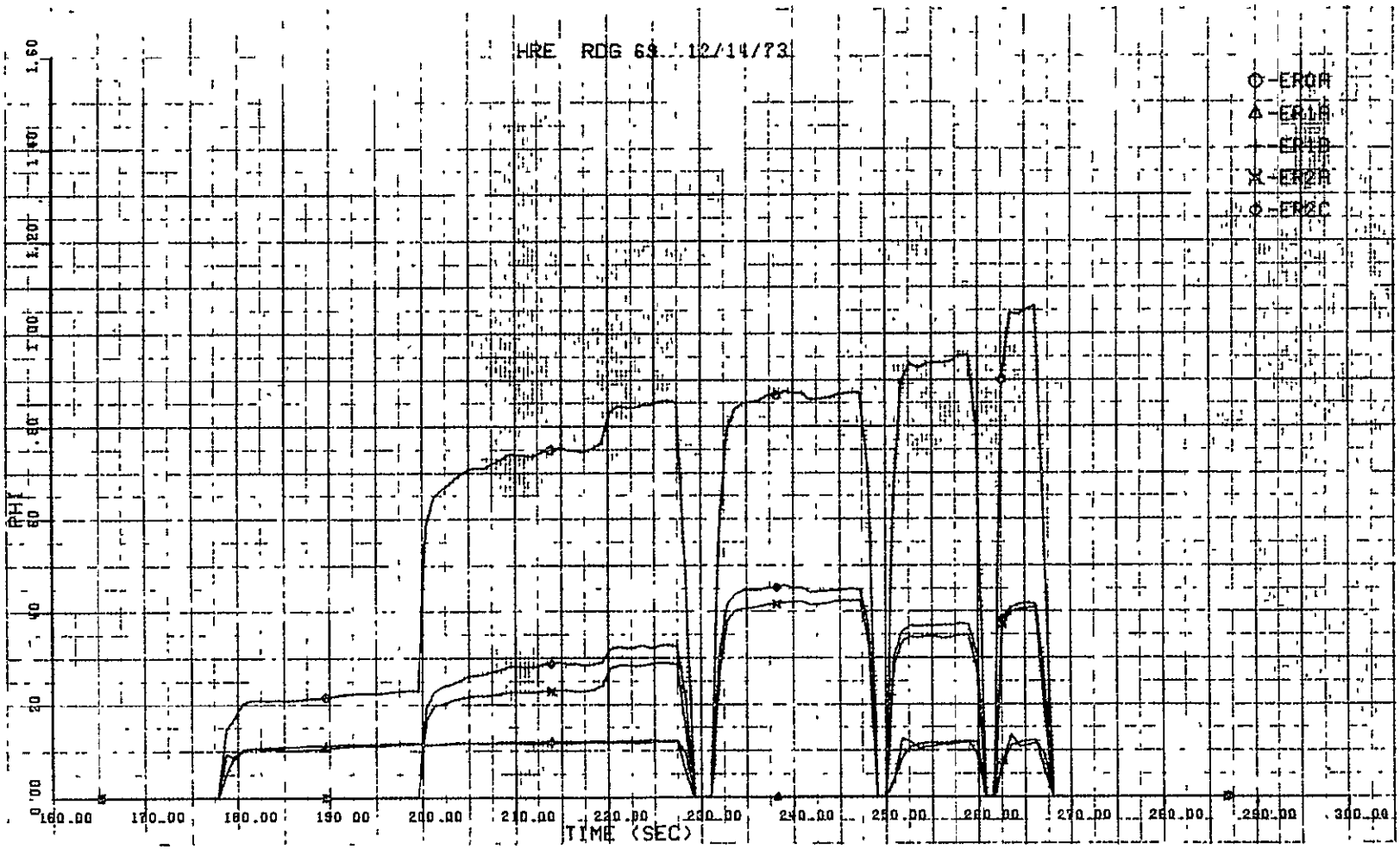
(c) Reading 64 - Measured Equivalence Ratio, ϕ

Figure 4. - Continued.



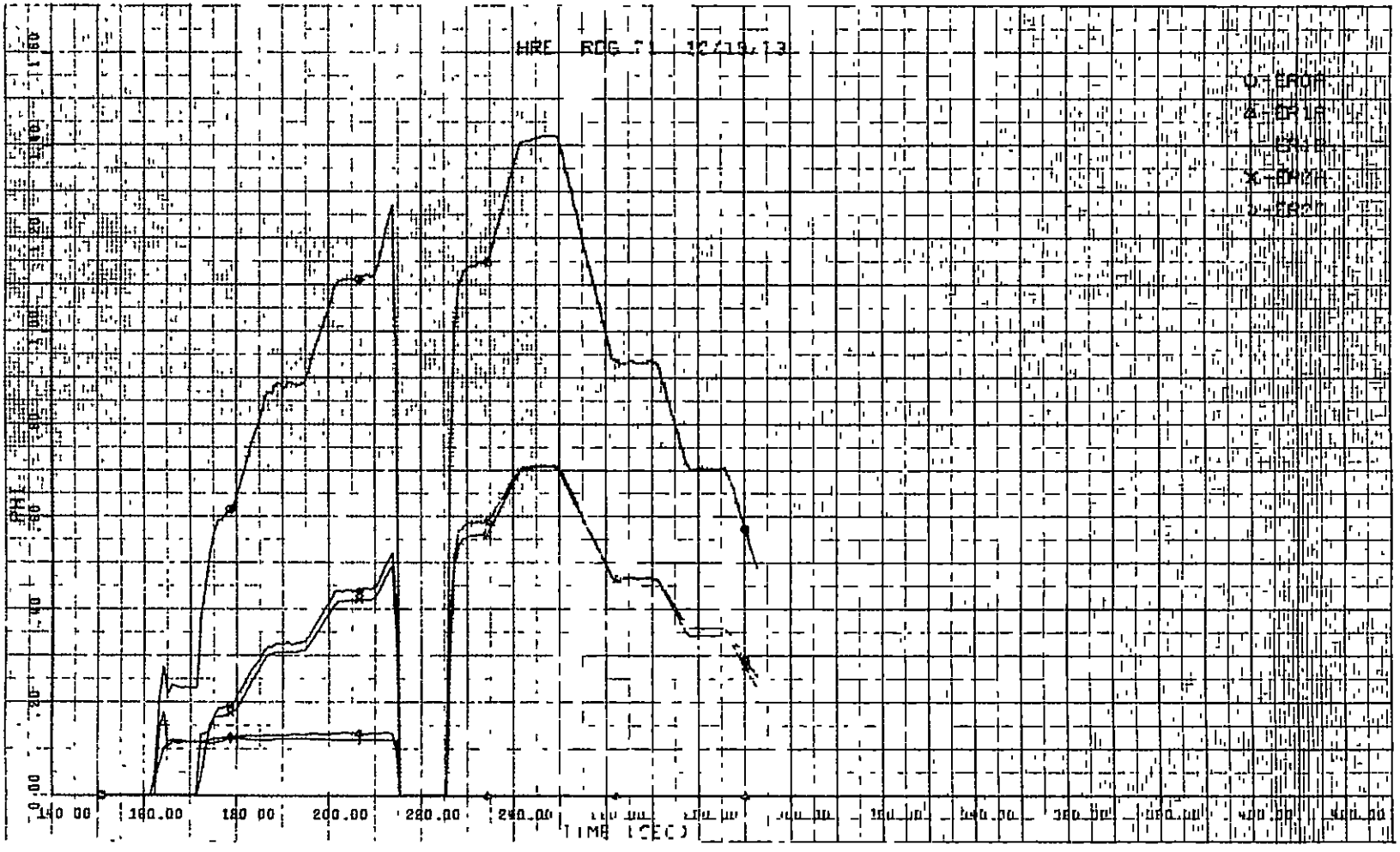
(d) Reading 65 - Measured Equivalence Ratio, ϕ

Figure 4. - Continued.



(e) Reading 69 - Measured Equivalence Ratio, ϕ

Figure 4. - Continued.



(f) Reading 71 - Measured Equivalence Ratio, ϕ

Figure 4. - Concluded.

Reading 61

t = 178.86 sec.

3/04/75

READING = 0061 BLOCK = 88 TIPF = 178.862 MACH 6.0 PT = 745.249 TT = 2997.6 PAGE 1

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0	5														
	0.000	745.249	2998	668.9(794)	1.2929	28.955	2580											
	0.000	0.389	407	-31.3(98)	1.3989	28.954	988	5.989	5919	1.827	0.10600	21.230	0.7820	3984	9.750	187.6		
SPIKE TIP NS		2	0	6														
	0.600	18.675	2998	668.9(794)	1.2928	28.954	2580											
	0.600	17.008	2955	649.8(775)	1.2948	28.954	2554	0.382	976	2.080	0.10600	21.230	0.7820	4051	1.608	190.8		
WIND TUNNEL		3	0	0														
	0.000	745.249	2998	668.9(794)	1.2929	28.955	2580											
	0.000	0.400	410	-30.5(98)	1.3969	28.954	993	5.900	5916	1.827	0.10818	21.668	0.7820	4064	9.946	187.6		
SPIKE TIP NS		4	0	0														
	0.600	18.675	2998	668.9(794)	1.2928	28.954	2580											
	0.600	16.930	2931	648.9(774)	1.2949	28.954	2553	0.392	1000	2.080	0.10818	21.668	0.7820	4064	1.681	187.6		
INLET THROAT		5	0	3														
	40.400	307.275	2961	657.9(783)	1.2940	28.954	2565											
	40.400	19.271	1512	245.4(374)	1.3473	28.954	1870	2.429	4544	1.884	1.08512	21.230	0.0764	3375	76.622	159.0		
INLET UPNRSK		6	0	3														
	40.400	307.275	2961	657.9(783)	1.2940	28.954	2565											
	40.400	16.527	1453	229.7(359)	1.3506	28.954	1836	2.522	4629	1.884	0.98647	21.230	0.0840	3410	70.963	160.6		
INLET DNNRSK		7	0	4														
	40.400	140.460	2961	657.9(783)	1.2940	28.954	2565											
	40.400	120.028	2857	626.5(753)	1.2973	28.954	2523	0.497	1253	1.938	0.98647	21.230	0.0840	3410	19.212	160.6		
COMBUSTOR	0	8	1	3														
	40.410	307.172	2961	657.9(783)	1.2940	28.954	2565											
	40.410	19.270	1512	245.4(374)	1.3473	28.954	1870	2.429	4543	1.884	1.08497	21.230	0.0764	3375	76.608	159.0		
COMBUSTOR	0	9	2	3														
	40.841	301.878	2958	656.8(782)	1.2942	28.954	2564											
	40.841	19.562	1522	248.2(377)	1.3468	28.954	1876	2.410	4522	1.885	1.08860	21.230	0.0761	3365	76.497	158.5		
COMBUSTOR	0	10	3	4														
	41.331	277.602	2953	655.4(781)	1.2943	28.954	2562											
	41.331	20.243	1567	260.0(389)	1.3444	28.954	1902											
								2.339	4448	1.890	1.07705	21.230	0.0770	3334	74.456	157.1		
COMBUSTOR	0	11	4	4														
	41.500	264.352	2951	654.9(780)	1.2944	28.954	2561											
	41.500	20.658	1594	267.2(396)	1.3430	28.954	1917	2.298	4405	1.894	1.06990	21.230	0.0775	3316	73.235	156.2		
COMBUSTOR	0	12	5	4														
	41.831	237.019	2948	653.9(779)	1.2945	28.954	2560											
	41.831	21.571	1655	283.7(413)	1.3399	28.954	1951	2.206	4304	1.901	1.05147	21.230	0.0788	3276	70.338	154.3		
COMBUSTOR	0	13	6	3														
	42.460	183.440	2941	651.7(777)	1.2947	28.954	2557											
	42.460	23.945	1807	325.2(454)	1.3332	28.954	2034	1.988	4042	1.918	1.00372	21.230	0.0826	3174	63.054	149.5		
COMBUSTOR	0	14	7	4														
	42.826	160.732	2936	650.3(776)	1.2948	28.954	2555											
	42.826	25.778	1899	350.5(479)	1.3297	28.954	2082	1.860	3873	1.926	0.98531	21.230	0.0841	3111	59.305	146.5		
COMBUSTOR	0	15	8	4														
	42.891	157.326	2935	650.0(776)	1.2949	28.954	2555											
	42.891	26.060	1913	354.5(483)	1.3291	28.954	2090	1.840	3845	1.928	0.98134	21.230	0.0845	3101	58.639	146.1		
COMBUSTOR	0	16	9	5														
	44.310	119.142	2912	642.9(769)	1.2956	28.954	2545											
	44.310	29.445	2093	404.6(533)	1.3226	28.954	2180	1.584	3453	1.944	0.91035	21.230	0.0911	2965	48.851	139.7		
COMBUSTOR	0	17	10	5														
	44.800	115.332	2903	640.2(766)	1.2959	28.954	2541											
	44.800	29.501	2103	407.6(536)	1.3222	28.954	2185	1.561	3411	1.946	0.89658	21.230	0.0924	2950	47.532	138.9		
COMBUSTOR	0	18	11	5														
	45.611	114.207	2888	635.7(762)	1.2964	28.954	2535											
	45.611	28.994	2088	403.2(532)	1.3228	28.954	2178	1.566	3410	1.945	0.88737	21.230	0.0934	2944	47.027	138.7		

READING = 0061 BLOCK = 68 TIME = 178.862 MACH 6.0 P1 = 745.249 T1 = 2997.0 PAGE 2

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	A	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	5														
46.260	113.615	2876	632.1	(758)	1.2967	28.954	2530											
46.260	27.296	2051	392.9	(522)	1.3241	28.954	2159	1.602	3460	1.944	0.66285	21.230	0.0961	2955	46.395	139.2		
COMBUSTOR	0	20	13	5														
46.326	113.572	2875	631.8	(758)	1.2968	28.954	2530											
46.326	27.136	2047	391.8	(521)	1.3242	28.954	2158	1.606	3465	1.944	0.86053	21.230	0.0963	2956	46.335	139.2		
COMBUSTOR	0	21	14	5														
47.310	110.774	2858	626.7	(753)	1.2973	28.954	2523											
47.310	23.780	1981	373.5	(502)	1.3266	28.954	2125	1.676	3559	1.944	0.80039	21.230	0.1036	2979	44.275	140.3		
COMBUSTOR	0	22	15	5														
48.110	106.465	2844	622.7	(749)	1.2977	28.954	2518											
48.110	20.730	1925	357.7	(486)	1.3287	28.954	2095	1.738	3642	1.945	0.73492	21.230	0.1128	3002	41.590	141.4		
COMBUSTOR	0	23	16	5														
48.851	101.209	2832	619.1	(745)	1.2981	28.954	2513											
48.851	17.569	1857	338.9	(468)	1.3313	28.954	2060											
								1.818	3744	1.947	0.65632	21.230	0.1263	3033	38.190	142.8		
COMBUSTOR	0	24	17	5														
50.301	92.413	2811	612.7	(739)	1.2988	28.954	2504											
50.301	12.674	1741	307.2	(436)	1.3359	28.954	1999	1.957	3910	1.951	0.53338	21.230	0.1554	3085	32.414	145.3		
COMBUSTOR	0	25	18	5														
50.831	89.473	2805	610.9	(737)	1.2990	28.954	2501											
50.831	11.505	1709	298.4	(427)	1.3374	28.954	1981	1.996	3954	1.953	0.49883	21.230	0.1662	3099	30.656	146.0		
COMBUSTOR	0	26	19	4														
52.241	83.787	2790	606.5	(733)	1.2995	28.954	2495											
52.241	9.080	1627	276.2	(405)	1.3413	28.954	1936	2.100	4066	1.956	0.42514	21.230	0.1950	3136	26.861	147.7		
COMBUSTOR	0	27	20	5														
54.341	77.419	2772	601.1	(728)	1.3000	28.954	2488											
54.341	6.792	1530	250.2	(379)	1.3463	28.954	1881	2.228	4190	1.959	0.34846	21.230	0.2379	3179	22.691	149.7		
COMBUSTOR	0	28	21	5														
54.841	75.688	2768	600.0	(727)	1.3002	28.954	2486											
54.841	6.421	1515	246.1	(375)	1.3472	28.954	1872	2.248	4208	1.960	0.33421	21.230	0.2480	3185	21.857	150.0		
COMBUSTOR	0	29	22	5														
55.591	73.296	2763	598.5	(725)	1.3003	28.954	2484											
55.591	5.933	1493	240.4	(369)	1.3484	28.954	1860	2.276	4233	1.962	0.31505	21.230	0.2631	3193	20.724	150.4		
COMBUSTOR	0	30	23	5														
55.760	72.779	2762	598.1	(725)	1.3004	28.954	2483											
55.760	5.833	1489	239.2	(368)	1.3486	28.954	1857	2.282	4238	1.962	0.31104	21.230	0.2665	3194	20.485	150.5		
COMBUSTOR	0	31	24	5														
56.351	63.700	2758	597.0	(724)	1.3005	28.954	2482											
56.351	4.245	1417	220.2	(349)	1.3527	28.954	1814	2.393	4342	1.971	0.24373	21.230	0.3401	3235	16.445	152.4		
COMBUSTOR	0	32	25	4														
57.776	62.502	2749	594.3	(721)	1.3008	28.954	2478											
57.776	3.768	1375	209.3	(338)	1.3552	28.954	1789	2.454	4389	1.971	0.22531	21.230	0.3679	3251	15.369	153.2		
COMBUSTOR	0	33	26	4														
57.831	62.450	2749	594.2	(721)	1.3008	28.954	2478											
57.831	3.751	1374	208.9	(338)	1.3553	28.954	1788	2.456	4391	1.971	0.22464	21.230	0.3690	3252	15.329	153.2		
COMBUSTOR	0	34	27	4														
57.971	62.322	2748	594.0	(721)	1.3008	28.954	2477											
57.971	3.712	1370	208.0	(337)	1.3555	28.954	1786	2.461	4395	1.971	0.22306	21.230	0.3716	3253	15.235	153.2		
COMBUSTOR	0	35	28	4														
58.051	63.196	2747	593.8	(721)	1.3008	28.954	2477											
58.051	3.746	1368	207.5	(336)	1.3556	28.954	1785	2.464	4397	1.970	0.22556	21.230	0.3675	3254	15.413	153.3		
COMBUSTOR	0	36	29	4														
58.331	63.554	2746	593.3	(720)	1.3009	28.954	2477											
58.331	3.711	1362	205.8	(335)	1.3560	28.954	1781	2.475	4404	1.970	0.22481	21.230	0.3687	3256	15.385	153.4		
COMBUSTOR	0	37	30	4														
58.557	63.847	2744	593.0	(720)	1.3009	28.954	2476											
58.557	3.688	1357	204.6	(333)	1.3563	28.954	1778											
								2.479	4408	1.969	0.22439	21.230	0.3694	3258	15.373	154.5		

	P	T	H		GAMMA	MOLWT	GONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	58	31	4														
59.261	63.638	2741	591.8	(719)	1.3011	28.954	2474											
59.281	3.590	1346	201.5	(330)	1.3570	28.954	1771	2.496	4419	1.969	0.22087	21.230	0.3753	3261	15.169	153.6		
COMBUSTOR	0	59	32	5														
60.301	63.801	2736	590.4	(717)	1.3012	28.954	2472											
60.301	3.548	1339	199.8	(329)	1.3574	28.954	1767	2.502	4421	1.969	0.21947	21.230	0.3777	3260	15.078	153.6		
COMBUSTOR	0	60	33	5														
62.311	64.618	2729	588.3	(715)	1.3014	28.954	2469											
62.311	3.711	1347	201.8	(331)	1.3569	28.954	1771	2.483	4398	1.967	0.22710	21.230	0.3650	3249	15.522	153.0		
COMBUSTOR	0	61	34	4														
63.731	65.218	2725	587.1	(714)	1.3016	28.954	2468											
63.731	3.847	1354	203.6	(333)	1.3565	28.954	1776	2.467	4380	1.966	0.23326	21.230	0.3553	3240	15.878	152.6		
COMBUSTOR	0	62	35	2														
66.195	60.092	2716	584.7	(712)	1.3018	28.954	2464											
66.195	3.702	1365	206.5	(335)	1.3558	28.954	1782	2.441	4350	1.971	0.22110	21.230	0.3749	3226	14.947	152.0		
COMBUSTOR	0	63	36	3														
66.571	55.648	2715	584.3	(711)	1.3019	28.954	2464											
66.571	3.448	1366	206.8	(336)	1.3558	28.954	1783	2.437	4346	1.976	0.20555	21.230	0.4032	3224	13.883	151.8		
NOZZLE AE		64	37	4														
88.807	55.648	2715	584.3	(711)	1.3019	28.954	2464											
88.807	0.309	705	40.6	(170)	1.3939	28.954	1299	4.016	5216	1.976	0.04279	21.230	1.9371	3595	3.468	169.3		
NOZZLE R0		65	38	4														
88.807	55.648	2715	584.3	(711)	1.3019	28.954	2464											
88.807	0.389	752	52.2	(181)	1.3919	28.953	1341	3.848	5160	1.976	0.04995	21.230	1.6593	3570	4.006	168.2		
FICTIVE COMBUSTR		65	58	0														
66.571	307.275	2715	584.3	(711)	1.3018	28.954	2464											
66.571	0.389	463	-17.8	(111)	1.3991	28.954	1055	5.204	5489	1.858	0.08635	21.230	0.9599	3717	7.365	175.1		
FICTIVE NOZZLE		66	59	0														
88.807	74.045	2687	576.1	(703)	1.3028	28.954	2452											
88.807	0.266	616	19.0	(148)	1.3969	28.954	1215	4.345	5280	1.953	0.04279	21.230	1.9371	3616	3.511	170.3		

READING = 0061 BLOCK = 88 TIME = 178.862 MACH 6.0 PI = 745.249 TT = 2997.6

XABS	P-IB	P-OB	PDA	QUX	W-IB	Q-OB	CAWALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OB/PT0
6.981E-01	1.040E 00	0.000	-4.547E-01	0.000	0.000	0.000	2.470E-02	2.675E 00	1.396E-03	0.000	0.000
1.836E 01	1.040E 00	0.000	-3.465E 01	0.000	0.000	0.000	1.634E 02	2.675E 00	1.396E-03	0.000	0.000
3.070E 01	2.190E 00	0.000	-1.656E 02	0.000	0.000	0.000	5.053E 02	5.634E 00	2.939E-03	0.000	0.000
3.508E 01	3.893E 00	0.000	-3.627E 02	0.000	0.000	0.000	6.804E 02	1.002E 01	5.224E-03	0.000	0.000
3.555E 01	3.960E 00	0.000	-3.985E 02	0.000	0.000	0.000	7.013E 02	1.019E 01	5.314E-03	0.000	0.000
3.606E 01	3.870E 00	0.000	-4.382E 02	-1.171E 02	-1.171E 02	0.000	7.246E 02	9.956E 00	5.193E-03	0.000	0.000
3.648E 01	4.232E 00	0.000	-4.729E 02	-1.199E 02	-1.199E 02	0.000	7.443E 02	1.089E 01	5.678E-03	0.000	0.000
3.671E 01	4.212E 00	5.694E 00	-5.506E 02	-1.215E 02	-1.215E 02	0.000	7.551E 02	1.083E 01	5.651E-03	1.465E 01	7.640E-03
3.671E 01	4.211E 00	5.729E 00	-5.507E 02	-1.215E 02	-1.215E 02	0.000	7.554E 02	1.083E 01	5.651E-03	1.474E 01	7.688E-03
3.701E 01	4.185E 00	7.490E 00	-5.539E 02	-1.236E 02	-1.236E 02	0.000	7.860E 02	1.077E 01	5.616E-03	1.927E 01	1.005E-02
3.738E 01	4.032E 00	9.700E 00	-5.512E 02	-1.264E 02	-1.264E 02	0.000	8.250E 02	1.037E 01	5.411E-03	2.495E 01	1.302E-02
3.803E 01	3.765E 00	1.249E 01	-5.308E 02	-1.315E 02	-1.315E 02	0.000	8.950E 02	9.686E 00	5.052E-03	3.213E 01	1.676E-02
3.875E 01	1.159E 01	1.559E 01	-5.408E 02	-1.583E 02	-1.403E 02	-1.802E 01	9.751E 02	2.981E 01	1.555E-02	4.009E 01	2.091E-02
3.884E 01	1.257E 01	1.597E 01	-5.446E 02	-1.614E 02	-1.418E 02	-1.959E 01	9.854E 02	3.234E 01	1.687E-02	4.110E 01	2.144E-02
3.901E 01	1.441E 01	1.684E 01	-5.527E 02	-1.674E 02	-1.449E 02	-2.251E 01	1.004E 03	3.707E 01	1.934E-02	4.333E 01	2.260E-02
3.950E 01	1.861E 01	1.936E 01	-5.770E 02	-1.872E 02	-1.563E 02	-3.090E 01	1.061E 03	4.788E 01	2.497E-02	4.981E 01	2.598E-02
3.986E 01	1.677E 01	2.121E 01	-5.815E 02	-2.041E 02	-1.671E 02	-3.703E 01	1.102E 03	4.315E 01	2.251E-02	5.457E 01	2.846E-02
4.000E 01	1.606E 01	2.034E 01	-5.809E 02	-2.112E 02	-1.718E 02	-3.940E 01	1.118E 03	4.132E 01	2.155E-02	5.233E 01	2.729E-02
4.033E 01	1.730E 01	1.827E 01	-5.798E 02	-2.288E 02	-1.838E 02	-4.498E 01	1.157E 03	4.451E 01	2.321E-02	4.701E 01	2.452E-02
4.040E 01	1.756E 01	1.834E 01	-5.802E 02	-2.326E 02	-1.865E 02	-4.615E 01	1.165E 03	4.517E 01	2.356E-02	4.719E 01	2.462E-02
4.041E 01	1.760E 01	1.835E 01	-5.801E 02	-2.331E 02	-1.868E 02	-4.632E 01	1.166E 03	4.527E 01	2.361E-02	4.722E 01	2.463E-02
4.084E 01	1.921E 01	1.879E 01	-5.809E 02	-2.573E 02	-2.037E 02	-5.354E 01	1.216E 03	4.941E 01	2.577E-02	4.833E 01	2.521E-02
4.133E 01	2.104E 01	4.425E 00	-6.014E 02	-2.861E 02	-2.246E 02	-6.159E 01	1.274E 03	5.413E 01	2.823E-02	1.138E 01	5.938E-03
4.150E 01	2.167E 01	4.196E 00	-6.158E 02	-2.965E 02	-2.322E 02	-6.432E 01	1.294E 03	5.576E 01	2.908E-02	1.080E 01	5.631E-03
4.183E 01	2.924E 01	3.750E 00	-6.493E 02	-3.174E 02	-2.478E 02	-6.958E 01	1.333E 03	7.523E 01	3.924E-02	9.647E 00	5.032E-03
4.246E 01	4.365E 01	3.479E 00	-7.386E 02	-3.642E 02	-2.784E 02	-8.575E 01	1.408E 03	1.123E 02	5.857E-02	8.950E 00	4.668E-03
4.283E 01	3.952E 01	3.522E 00	-7.942E 02	-3.961E 02	-2.958E 02	-1.003E 02	1.452E 03	1.017E 02	5.303E-02	8.545E 00	4.457E-03
4.289E 01	3.878E 01	3.294E 00	-8.031E 02	-4.020E 02	-2.988E 02	-1.032E 02	1.460E 03	9.978E 01	5.204E-02	8.473E 00	4.420E-03
4.431E 01	2.275E 01	1.217E 01	-9.134E 02	-5.515E 02	-3.596E 02	-1.919E 02	1.631E 03	5.852E 01	3.052E-02	3.130E 01	1.633E-02
4.480E 01	1.721E 01	1.523E 01	-9.208E 02	-6.098E 02	-3.783E 02	-2.314E 02	1.690E 03	4.428E 01	2.310E-02	3.918E 01	2.044E-02
4.561E 01	1.589E 01	2.030E 01	-9.131E 02	-7.059E 02	-4.078E 02	-2.980E 02	1.789E 03	4.087E 01	2.132E-02	5.222E 01	2.723E-02
4.626E 01	1.482E 01	1.841E 01	-8.918E 02	-7.808E 02	-4.305E 02	-3.503E 02	1.869E 03	3.814E 01	1.989E-02	4.736E 01	2.470E-02
4.633E 01	1.472E 01	1.822E 01	-8.897E 02	-7.882E 02	-4.328E 02	-3.555E 02	1.877E 03	3.786E 01	1.975E-02	4.687E 01	2.445E-02
4.731E 01	1.311E 01	1.536E 01	-8.504E 02	-8.961E 02	-4.656E 02	-4.305E 02	1.998E 03	3.372E 01	1.759E-02	3.950E 01	2.060E-02
4.811E 01	1.444E 01	1.303E 01	-8.163E 02	-9.810E 02	-4.910E 02	-4.899E 02	2.097E 03	3.714E 01	1.937E-02	3.352E 01	1.748E-02
4.885E 01	1.087E 01	1.087E 01	-7.755E 02	-1.059E 03	-5.136E 02	-5.451E 02	2.189E 03	2.798E 01	1.459E-02	2.798E 01	1.459E-02
5.030E 01	7.711E 00	7.711E 00	-7.060E 02	-1.192E 03	-5.548E 02	-6.369E 02	2.370E 03	1.984E 01	1.035E-02	1.984E 01	1.035E-02
5.083E 01	6.554E 00	6.554E 00	-6.863E 02	-1.231E 03	-5.689E 02	-6.622E 02	2.437E 03	1.686E 01	8.795E-03	1.686E 01	8.795E-03
5.224E 01	7.044E 00	7.044E 00	-6.361E 02	-1.325E 03	-6.040E 02	-7.205E 02	2.614E 03	1.812E 01	9.452E-03	1.812E 01	9.452E-03
5.434E 01	3.712E 00	3.712E 00	-5.769E 02	-1.459E 03	-6.498E 02	-7.892E 02	2.881E 03	9.551E 00	4.982E-03	9.551E 00	4.982E-03
5.484E 01	3.575E 00	3.575E 00	-5.674E 02	-1.462E 03	-6.596E 02	-8.022E 02	2.944E 03	9.197E 00	4.797E-03	9.197E 00	4.797E-03
5.559E 01	3.215E 00	3.215E 00	-5.542E 02	-1.495E 03	-6.734E 02	-8.213E 02	3.040E 03	8.271E 00	4.314E-03	8.271E 00	4.314E-03
5.576E 01	3.134E 00	3.134E 00	-5.515E 02	-1.502E 03	-6.764E 02	-8.256E 02	3.062E 03	8.061E 00	4.205E-03	8.061E 00	4.205E-03
5.635E 01	2.085E 00	2.850E 00	-5.094E 02	-1.527E 03	-6.864E 02	-8.404E 02	3.102E 03	5.364E 00	2.798E-03	7.332E 00	3.824E-03
5.778E 01	2.958E 00	2.958E 00	-4.887E 02	-1.583E 03	-7.077E 02	-8.754E 02	3.209E 03	7.610E 00	3.969E-03	7.610E 00	3.969E-03
5.783E 01	2.362E 00	2.962E 00	-4.879E 02	-1.585E 03	-7.085E 02	-8.767E 02	3.216E 03	6.078E 00	3.170E-03	7.620E 00	3.975E-03
5.797E 01	2.362E 00	2.973E 00	-4.859E 02	-1.590E 03	-7.104E 02	-8.801E 02	3.234E 03	6.078E 00	3.170E-03	7.648E 00	3.989E-03
5.805E 01	2.979E 00	2.979E 00	-4.847E 02	-1.593E 03	-7.114E 02	-8.820E 02	3.244E 03	7.663E 00	3.997E-03	7.663E 00	3.997E-03
5.833E 01	3.000E 00	3.000E 00	-4.808E 02	-1.604E 03	-7.150E 02	-8.886E 02	3.280E 03	7.716E 00	4.025E-03	7.716E 00	4.025E-03
5.856E 01	2.908E 00	2.908E 00	-4.780E 02	-1.612E 03	-7.178E 02	-8.938E 02	3.309E 03	7.481E 00	3.902E-03	7.481E 00	3.902E-03
5.928E 01	2.612E 00	2.612E 00	-4.705E 02	-1.636E 03	-7.262E 02	-9.101E 02	3.402E 03	6.721E 00	3.506E-03	6.721E 00	3.506E-03
6.030E 01	1.875E 00	1.875E 00	-4.653E 02	-1.666E 03	-7.362E 02	-9.302E 02	3.532E 03	4.824E 00	2.516E-03	4.824E 00	2.516E-03
6.231E 01	1.250E 00	1.250E 00	-4.649E 02	-1.711E 03	-7.514E 02	-9.593E 02	3.790E 03	3.216E 00	1.677E-03	3.216E 00	1.677E-03
6.373E 01	2.462E 00	2.462E 00	-4.649E 02	-1.737E 03	-7.603E 02	-9.768E 02	3.972E 03	6.335E 00	3.304E-03	6.335E 00	3.304E-03
6.619E 01	3.693E 00	3.693E 00	-4.649E 02	-1.788E 03	-7.759E 02	-1.012E 03	4.289E 03	9.499E 00	4.955E-03	9.499E 00	4.955E-03
6.657E 01	2.550E 00	3.880E 00	-4.649E 02	-1.797E 03	-7.784E 02	-1.018E 03	4.337E 03	6.560E 00	3.422E-03	9.982E 00	5.207E-03

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.661E 01	2.550E 00	3.900E 00	-4.649E 02	-1.798E 03	-7.786E 02	-1.019E 03	4.342E 03	6.560E 00	3.422E-03	1.003E 01	5.233E-03
6.681E 01	2.651E 00	4.000E 00	-4.649E 02	-1.802E 03	-7.799E 02	-1.022E 03	4.368E 03	6.820E 00	3.557E-03	1.029E 01	5.367E-03
6.847E 01	5.490E 00	3.070E 00	-4.276E 02	-1.835E 03	-7.890E 02	-1.046E 03	4.583E 03	8.978E 00	4.683E-03	7.698E 00	4.119E-03
6.914E 01	2.487E 00	2.610E 00	-3.686E 02	-1.845E 03	-7.919E 02	-1.054E 03	4.665E 03	6.399E 00	3.338E-03	6.714E 00	3.502E-03
6.991E 01	1.335E 00	2.031E 00	-3.105E 02	-1.857E 03	-7.949E 02	-1.062E 03	4.760E 03	3.434E 00	1.791E-03	5.225E 00	2.726E-03
7.063E 01	1.219E 00	1.490E 00	-2.716E 02	-1.869E 03	-7.973E 02	-1.072E 03	4.848E 03	3.135E 00	1.635E-03	3.833E 00	1.999E-03
7.124E 01	1.120E 00	1.322E 00	-2.437E 02	-1.880E 03	-7.991E 02	-1.080E 03	4.922E 03	2.881E 00	1.503E-03	3.401E 00	1.774E-03
7.219E 01	9.169E-01	1.060E 00	-2.085E 02	-1.897E 03	-8.016E 02	-1.095E 03	5.036E 03	2.359E 00	1.230E-03	2.727E 00	1.422E-03
7.262E 01	8.250E-01	1.071E 00	-1.949E 02	-1.904E 03	-8.026E 02	-1.102E 03	5.088E 03	2.122E 00	1.107E-03	2.755E 00	1.437E-03
7.415E 01	7.521E-01	1.110E 00	-1.508E 02	-1.926E 03	-8.057E 02	-1.120E 03	5.273E 03	1.935E 00	1.009E-03	2.856E 00	1.489E-03
7.430E 01	7.450E-01	9.742E-01	-1.469E 02	-1.927E 03	-8.060E 02	-1.121E 03	5.290E 03	1.917E 00	9.997E-04	2.506E 00	1.307E-03
7.505E 01	6.242E-01	2.950E-01	-1.247E 02	-1.937E 03	-8.072E 02	-1.130E 03	5.374E 03	1.606E 00	8.376E-04	7.589E-01	3.958E-04
7.505E 01	6.236E-01	2.914E-01	-1.242E 02	-1.937E 03	-8.072E 02	-1.130E 03	5.375E 03	1.604E 00	8.367E-04	7.496E-01	3.910E-04
7.638E 01	4.100E-01	0.000	-1.132E 02	-1.957E 03	-8.091E 02	-1.148E 03	5.426E 03	1.055E 00	5.502E-04	0.000	0.000
7.923E 01	8.000E-01	0.000	-8.905E 01	-1.961E 03	-8.123E 02	-1.148E 03	5.525E 03	2.058E 00	1.073E-03	0.000	0.000
8.313E 01	3.050E-01	0.000	-6.543E 01	-1.963E 03	-8.152E 02	-1.148E 03	5.630E 03	7.846E-01	4.093E-04	0.000	0.000
8.594E 01	3.650E-01	0.000	-5.799E 01	-1.966E 03	-8.176E 02	-1.148E 03	5.684E 03	9.390E-01	4.898E-04	0.000	0.000
8.880E 01	4.750E-01	0.000	-4.785E 01	-1.970E 03	-8.220E 02	-1.148E 03	5.707E 03	1.222E 00	6.374E-04	0.000	0.000
8.881E 01	4.752E-01	0.000	-4.785E 01	-1.970E 03	-8.220E 02	-1.148E 03	5.707E 03	1.223E 00	6.377E-04	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.220E 02	1.220E 02	2.353E-03	5.383E-02
4.041E 01	2.112E-01	1.222E 02	2.353E-03	5.386E-02
4.084E 01	9.105E 00	1.313E 02	2.366E-03	5.437E-02
4.133E 01	1.039E 01	1.417E 02	2.409E-03	5.504E-02
4.150E 01	3.575E 00	1.453E 02	2.434E-03	5.541E-02
4.183E 01	6.918E 00	1.522E 02	2.490E-03	5.606E-02
4.246E 01	1.276E 01	1.650E 02	2.619E-03	5.712E-02
4.283E 01	7.093E 00	1.721E 02	2.693E-03	5.806E-02
4.289E 01	1.239E 00	1.733E 02	2.705E-03	5.817E-02
4.431E 01	2.551E 01	1.988E 02	2.846E-03	5.765E-02
4.480E 01	8.183E 00	2.070E 02	2.859E-03	5.698E-02
4.561E 01	1.336E 01	2.204E 02	2.857E-03	5.630E-02
4.626E 01	1.058E 01	2.310E 02	2.838E-03	5.423E-02
4.633E 01	1.062E 00	2.320E 02	2.836E-03	5.403E-02
4.731E 01	1.549E 01	2.475E 02	2.798E-03	4.934E-02
4.811E 01	1.183E 01	2.593E 02	2.762E-03	4.453E-02
4.885E 01	1.006E 01	2.694E 02	2.715E-03	3.889E-02
5.030E 01	1.712E 01	2.865E 02	2.638E-03	3.039E-02
5.083E 01	5.509E 00	2.920E 02	2.617E-03	2.810E-02
5.224E 01	1.321E 01	3.052E 02	2.556E-03	2.320E-02
5.434E 01	1.662E 01	3.219E 02	2.482E-03	1.826E-02
5.484E 01	3.515E 00	3.254E 02	2.471E-03	1.741E-02
5.559E 01	5.024E 00	3.304E 02	2.454E-03	1.666E-02
5.576E 01	1.095E 00	3.315E 02	2.451E-03	1.602E-02
5.635E 01	1.775E 00	3.333E 02	2.378E-03	1.208E-02
5.778E 01	4.043E 00	3.373E 02	2.343E-03	1.094E-02
5.783E 01	2.533E-01	3.376E 02	2.342E-03	1.091E-02
5.797E 01	6.356E-01	3.382E 02	2.339E-03	1.081E-02
5.805E 01	3.663E-01	3.386E 02	2.332E-03	1.069E-02
5.833E 01	1.278E 00	3.398E 02	2.323E-03	1.081E-02
5.856E 01	1.029E 00	3.409E 02	2.316E-03	1.075E-02
5.928E 01	3.267E 00	3.441E 02	2.303E-03	1.051E-02
6.030E 01	4.545E 00	3.487E 02	2.295E-03	1.039E-02
6.231E 01	9.055E 00	3.577E 02	2.295E-03	1.076E-02
6.373E 01	6.563E 00	3.643E 02	2.294E-03	1.105E-02
6.619E 01	1.126E 01	3.756E 02	2.326E-03	1.064E-02
6.657E 01	1.627E 00	3.772E 02	2.354E-03	1.002E-02
6.661E 01	1.647E-01	3.773E 02	2.342E-03	9.542E-03
6.681E 01	8.142E-01	3.782E 02	2.347E-03	9.755E-03
6.847E 01	6.873E 00	3.850E 02	2.338E-03	9.628E-03
6.914E 01	2.407E 00	3.874E 02	2.289E-03	7.979E-03
6.991E 01	2.286E 00	3.897E 02	2.209E-03	5.837E-03
7.063E 01	1.729E 00	3.915E 02	2.168E-03	4.943E-03
7.124E 01	1.309E 00	3.928E 02	2.146E-03	4.564E-03
7.219E 01	1.824E 00	3.946E 02	2.105E-03	3.879E-03
7.262E 01	7.602E-01	3.953E 02	2.097E-03	3.755E-03
7.415E 01	2.636E 00	3.980E 02	2.090E-03	5.696E-03
7.430E 01	2.385E-01	3.982E 02	2.075E-03	3.477E-03
7.505E 01	9.340E-01	3.992E 02	1.968E-03	2.154E-03
7.505E 01	1.415E-03	3.992E 02	1.967E-03	2.147E-03
7.638E 01	4.350E-01	3.996E 02	1.945E-03	1.969E-03
7.923E 01	1.014E 00	4.006E 02	2.045E-03	3.261E-03
8.313E 01	9.935E-01	4.016E 02	1.875E-03	1.552E-03
8.594E 01	3.751E-01	4.020E 02	1.894E-03	1.770E-03
8.680E 01	1.817E-01	4.022E 02	1.927E-03	2.153E-03
8.881E 01	0.000	4.022E 02	1.926E-03	2.154E-03

RAMJET PERFORMANCE

62

ENGINE PERFORMANCE

CALCULATED THRUST	=462.	(LBF)
MEASURED THRUST	=689.	(LBF)
CALCULATED SPECIFIC IMPULSE	=462.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=689.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.1848	
MEASURED THRUST COEFFICIENT	=.2758	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	0.	(LBF)
NET THRUST	0.	(LBF)
SPECIFIC IMPULSE	0.	(LBF=SEC/LBM)
THRUST COEFFICIENT	0.0000	

MOMENTUM AND FORCES

INLET FRICTION DRAG	122.0	(LBF)
INLET MOMENTUM CHANGE	=702.2	(LBF)
COMBUSTOR FRICTION DRAG	255.2	(LBF)
COMBUSTOR STRUT DRAG	11.52	(LBF)
COMBUSTOR MOMENTUM CHANGE	=151.	(LBF)
NOZZLE FRICTION DRAG	24.98	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	392.	(LBF)
NOZZLE PRESSURE INTEGRAL	417.	(LBF)
EXTERNAL FRICTION DRAG	60.07	(LBF)
EXTERNAL PRESSURE INTEGRAL	=1102.	(LBF)
TOTAL EXTERNAL DRAG	=1162.	(LBF)
TOTAL STRUT DRAG	11.52	(LBF)
CAVITY FORCE	=1028.	(LBF)
CALCULATED LOAD CELL FORCE	=2651.	(LBF)
MEASURED LOAD CELL FORCE	=2879.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.8307	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.715	(IN)
NOZZLE SHROUD TRAILING EDGE	75.055	(IN)
NOZZLE PLUG TRAILING EDGE	88.807	(IN)
STRUT LEADING EDGE	57.971	(IN)
STRUT TRAILING EDGE	66.571	(IN)
COMBUSTOR EXIT	66.571	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.7820	
ADDITIVE DRAG COEFFICIENT	0.0289	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1857	
DELTA PT2	0.1390	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.4123	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1885	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.9052	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9130	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9469	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.9026	
ENTHALPY AT P0 = SUPERSONIC	=5.06	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	25.98	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0000
EQUIVALENCE RATIO	0.000
COMBUSTOR EFFICIENCY	0.000
TOTAL PRESSURE RATIO	0.1811
COMBUSTOR EFFECTIVENESS	0.5695
INJECTOR DISCHARGE COEFFICIENTS	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	1.0059
NOZZLE COEFFICIENT = CT	0.9588
PROCESS EFFICIENCY	1.0843
KINETIC ENERGY EFFICIENCY	1.0117

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	42.816	
1C	44.300	
2A	50.291	
2C	46.250	
3A	55.581	
3B	57.766	
4	46.316	

Reading 61

$t = 198.66$ sec.

READING = 0061 BLOCK = 110 TIME = 198.662 MACH 6.0 PT = 744.999 TT = 2988.8

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	R	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	744.999	2989	666.2(791)	1.2932	28.955	2576											
0.000	0.387	405	=31.7(97)	1.3989	28.954	986	5.993	5910	1.826	0.10592	21.279	0.7843	3986	9.728	187.3		
SPIKE TIP NS		2	0 6														
0.600	18.700	2989	666.2(791)	1.2930	28.954	2576											
0.600	17.045	2926	647.4(773)	1.2950	28.954	2551	0.380	971	2.079	0.10592	21.279	0.7843	4066	1.598	191.1		
WIND TUNNEL		3	0 0														
0.000	744.999	2989	666.2(791)	1.2932	28.955	2576											
0.000	0.401	409	=30.8(98)	1.3989	28.954	991	5.959	5906	1.826	0.10852	21.800	0.7843	4082	9.959	187.2		
SPIKE TIP NS		4	0 0														
0.600	18.700	2989	666.2(791)	1.2930	28.954	2576											
0.600	16.951	2923	646.3(772)	1.2952	28.954	2550	0.392	999	2.079	0.10852	21.800	0.7843	4082	1.684	187.2		
INLET THROAT		5	0 4														
40.400	276.500	2920	645.4(771)	1.2953	28.954	2548											
40.400	20.341	1550	255.6(384)	1.3453	28.954	1892	2.334	4416	1.887	1.08568	21.279	0.0765	3320	74.514	156.0		
INLET UPNRSK		6	0 3														
40.400	276.500	2920	645.4(771)	1.2953	28.954	2548											
40.400	17.403	1489	239.3(368)	1.3486	28.954	1857	2.427	4508	1.887	0.98698	21.279	0.0842	3356	69.139	157.7		
INLET DNNRSK		7	0 4														
40.400	137.506	2920	645.4(771)	1.2954	28.954	2548											
40.400	116.758	2812	613.2(740)	1.2988	28.954	2504	0.507	1269	1.935	0.98698	21.279	0.0842	3356	19.462	157.7		
COMBUSTOR	0	8	1 4														
40.410	199.546	3168	645.4(862)	1.2840	28.523	2663											
40.410	28.455	2011	298.6(520)	1.3231	28.524	2154	1.934	4166	1.970	1.08778	21.323	0.0765	3319	70.420	155.6	0.06	0.85
COMBUSTOR	0	9	2 202														
40.835	176.361	3216	643.5(875)	1.2817	28.587	2677											
40.835	41.644	2310	368.2(606)	1.3119	28.588	2296	1.617	3711	1.980	1.09145	21.323	0.0763	3273	62.954	153.5	0.06	1.00
COMBUSTOR	0	10	3 21														
41.325	153.547	3209	641.2(873)	1.2819	28.586	2675											
41.325	32.780	2250	350.6(588)	1.3139	28.587	2268	1.682	3813	1.989	1.08008	21.323	0.0771	3174	64.004	148.9	0.06	1.00
COMBUSTOR	0	11	4 21														
41.500	141.433	3206	640.4(872)	1.2819	28.586	2673											
41.500	35.110	2330	374.0(611)	1.3112	28.587	2305	1.584	3651	1.994	1.07268	21.323	0.0776	3117	60.856	146.2	0.06	1.00
COMBUSTOR	0	12	5 21														
41.825	121.564	3201	638.7(871)	1.2820	28.586	2671											
41.825	33.834	2390	391.5(629)	1.3091	28.587	2333	1.508	3517	2.004	1.05464	21.323	0.0789	3015	57.637	141.4	0.06	1.00
COMBUSTOR	0	13	6 21														
42.460	94.093	3188	634.9(867)	1.2823	28.586	2667											
42.460	31.538	2487	420.2(657)	1.3058	28.587	2376	1.379	3278	2.021	1.00735	21.323	0.0826	2840	51.320	133.2	0.06	1.00
COMBUSTOR	0	14	7 21														
42.810	90.157	2859	635.3(793)	1.2983	27.459	2592											
42.810	29.001	2186	429.2(589)	1.3207	27.459	2287	1.404	3211	2.049	0.99180	21.372	0.0841	2758	49.494	129.0	0.13	0.11
COMBUSTOR	0	15	8 21														
42.820	92.530	2790	635.2(773)	1.3015	27.384	2568											
42.820	28.928	2115	429.3(569)	1.3240	27.384	2255	1.423	3209	2.041	0.99092	21.372	0.0842	2756	49.423	128.9	0.13	0.02
COMBUSTOR	0	16	9 21														
42.885	90.753	2778	634.7(769)	1.3021	27.372	2563											
42.885	28.497	2107	430.2(567)	1.3245	27.372	2251	1.421	3199	2.041	0.98626	21.372	0.0846	2742	49.039	128.3	0.13	0.00
COMBUSTOR	0	17	10 21														
44.310	69.162	2739	623.0(757)	1.3034	27.371	2547											
44.310	26.247	2174	450.8(587)	1.3221	27.371	2285	1.285	2935	2.056	0.91581	21.372	0.0911	2562	41.778	119.9	0.13	0.00
COMBUSTOR	0	18	11 21														
44.800	66.893	2725	618.5(753)	1.3038	27.371	2540											
44.800	25.487	2164	447.9(584)	1.3224	27.370	2280	1.261	2922	2.057	0.90082	21.372	0.0926	2546	40.906	119.1	0.13	0.00

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	M	A/AC	MOMTM	Q	IVAC	PMI	ETAC
COMBUSTOR	0	19	12	21														
45.605	68.043	2838	611.2(	786)	1.2982	27.520	2580											
45.605	31.348	2367	465.9(	642)	1.3139	27.520	2370	1.148	2696	2.065	0.89268	21.372	0.0935	2542	37.407	118.9	0.13	0.19
COMBUSTOR	0	20	13	21														
46.250	66.555	2666	611.3(	783)	1.3072	25.631	2600											
46.250	32.579	2247	475.6(	648)	1.3213	25.631	2400	1.086	2607	2.163	0.87314	21.494	0.0961	2543	35.369	118.3	0.31	0.05
COMBUSTOR	0	21	14	21														
46.260	67.960	2591	611.2(	760)	1.3106	25.556	2570											
46.260	32.596	2170	475.6(	625)	1.3248	25.556	2365	1.102	2606	2.153	0.87275	21.494	0.0962	2544	35.342	118.3	0.31	0.01
COMBUSTOR	0	22	15	21														
46.320	68.240	2578	610.7(	756)	1.3112	25.545	2565											
46.320	32.712	2159	475.5(	621)	1.3254	25.545	2360	1.102	2601	2.151	0.86956	21.494	0.0965	2546	35.144	118.5	0.31	0.00
COMBUSTOR	0	23	16	21														
47.310	68.779	2548	601.4(	746)	1.3122	25.544	2551											
47.310	34.602	2158	475.9(	621)	1.3254	25.543	2360	1.062	2506	2.147	0.80927	21.494	0.1037	2593	31.519	120.7	0.31	0.00
COMBUSTOR	0	24	17	21														
48.110	68.289	2525	593.9(	738)	1.3130	25.543	2540											
48.110	34.526	2140	470.4(	616)	1.3260	25.543	2350	1.058	2486	2.145	0.74329	21.494	0.1129	2659	28.719	123.7	0.31	0.00
COMBUSTOR	0	25	18	21														
48.845	68.010	2506	587.0(	732)	1.3136	25.546	2531											
48.845	33.675	2113	461.0(	607)	1.3270	25.546	2336	1.075	2511	2.142	0.66448	21.494	0.1263	2767	25.933	128.7	0.31	0.00
COMBUSTOR	0	26	19	8														
50.285	63.276	2444	582.1(	759)	1.3173	23.936	2586											
50.285	20.633	1853	383.2(	561)	1.3385	23.936	2270	1.390	3154	2.253	0.54397	21.623	0.1552	2940	26.665	136.0	0.49	0.03
COMBUSTOR	0	27	20	2														
50.295	63.292	2443	582.0(	758)	1.3174	23.935	2586											
50.295	20.542	1850	382.5(	560)	1.3386	23.935	2268	1.393	3160	2.253	0.54326	21.623	0.1554	2941	26.674	136.0	0.49	0.03
COMBUSTOR	0	28	21	21														
50.825	65.343	2378	578.9(	737)	1.3202	23.884	2557											
50.825	15.742	1666	341.5(	500)	1.3469	23.884	2161	1.595	3446	2.242	0.50807	21.623	0.1662	2986	27.212	138.1	0.49	0.00
COMBUSTOR	0	29	22	4														
52.235	55.622	2618	571.4(	815)	1.3090	24.126	2657											
52.235	15.375	1915	333.0(	578)	1.3339	24.126	2294	1.506	3454	2.282	0.43302	21.623	0.1950	3089	23.243	142.9	0.49	0.11
COMBUSTOR	0	30	23	4														
54.335	51.259	2730	561.3(	852)	1.3035	24.260	2700											
54.335	11.437	1900	279.4(	571)	1.3329	24.260	2278	1.649	3756	2.298	0.35491	21.623	0.2379	3221	20.715	149.0	0.49	0.17
COMBUSTOR	0	31	24	2														
54.835	51.166	2725	559.2(	850)	1.3036	24.261	2698											
54.835	10.492	1857	264.8(	557)	1.3346	24.261	2254	1.703	3838	2.298	0.34040	21.623	0.2480	3246	20.304	150.1	0.49	0.17
COMBUSTOR	0	32	25	3														
55.585	50.623	2730	556.1(	851)	1.3033	24.274	2699											
55.585	9.434	1817	246.9(	544)	1.3361	24.274	2230	1.764	3933	2.299	0.32088	21.623	0.2631	3279	19.615	151.7	0.49	0.17
COMBUSTOR	0	33	26	0														
55.760	50.606	2728	555.5(	851)	1.3034	24.274	2699											
55.760	9.187	1803	242.6(	540)	1.3366	24.274	2222	1.781	3957	2.299	0.31666	21.623	0.2666	3286	19.471	152.0	0.49	0.17
COMBUSTOR	0	34	27	4														
56.345	42.177	2913	553.3(	912)	1.2946	24.460	2769											
56.345	7.282	1917	212.6(	574)	1.3299	24.461	2276	1.814	4129	2.329	0.24824	21.623	0.3401	3409	15.928	157.7	0.49	0.25
COMBUSTOR	0	35	28	4														
57.770	44.464	2847	548.6(	890)	1.2976	24.408	2743											
57.770	5.880	1747	176.1(	520)	1.3375	24.408	2182	1.979	4317	2.319	0.22944	21.623	0.3679	3455	15.393	159.8	0.49	0.23
COMBUSTOR	0	36	29	4														
57.825	39.901	2984	548.4(	935)	1.2910	24.544	2793											
57.825	6.717	1958	196.1(	587)	1.3273	24.545	2294	1.830	4199	2.339	0.22880	21.623	0.3690	3457	14.930	159.9	0.49	0.29
COMBUSTOR	0	37	30	3														
57.965	40.003	2977	548.0(	933)	1.2914	24.538	2791											
57.965	6.595	1943	193.1(	582)	1.3280	24.539	2286	1.843	4214	2.338	0.22715	21.623	0.3717	3460	14.875	160.0	0.49	0.29

READING = 0061 BLOCK = 110 TIME = 198.662 MACH 6.0 PT = 744.999 TT = 2988.8

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	M/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 11														
58.045	48.218	2775	547.8(866)	1.3009	24.341	2715											
58.045	5.400	1627	161.8(482)	1.3437	24.341	2113	2.080	4395	2.306	0.22978	21.623	0.3674	3462	15.694	160.1	0.49	0.20
COMBUSTOR	0	39	32 4														
58.325	52.583	2703	547.0(842)	1.3042	24.274	2687											
58.325	4.912	1507	147.7(445)	1.3505	24.274	2041	2.190	4470	2.292	0.22894	21.623	0.3688	3468	15.903	160.4	0.49	0.17
COMBUSTOR	0	40	33 4														
58.551	58.209	2628	546.4(817)	1.3076	24.204	2657											
58.551	4.446	1383	134.3(407)	1.3578	24.204	1964	2.312	4541	2.277	0.22855	21.623	0.3694	3472	16.128	160.6	0.49	0.14
COMBUSTOR	0	41	34 6														
59.275	92.768	2374	544.7(734)	1.3193	23.971	2549											
59.275	2.950	968	92.2(282)	1.3826	23.971	1666	2.856	4759	2.210	0.22496	21.623	0.3753	3482	16.637	161.0	0.49	0.04
COMBUSTOR	0	42	35 6														
60.295	32.956	3393	542.4(1072)	1.2698	24.982	2928											
60.295	9.000	2543	237.5(776)	1.3007	24.988	2565	1.523	3905	2.382	0.22353	21.623	0.3777	3495	13.566	161.6	0.49	0.47
COMBUSTOR	0	43	36 4														
62.305	33.470	3445	537.0(1090)	1.2667	25.054	2943											
62.305	9.725	2625	240.8(803)	1.2969	25.061	2599	1.481	3850	2.383	0.23131	21.623	0.3650	3496	13.839	161.7	0.49	0.50
COMBUSTOR	0	44	37 4														
63.725	32.033	3664	532.9(1163)	1.2535	25.304	3004											
63.725	12.262	2993	282.5(926)	1.2805	25.319	2743	1.290	3540	2.397	0.23758	21.623	0.3553	3495	13.069	161.6	0.49	0.61
COMBUSTOR	0	45	38 4														
66.189	29.381	3806	524.4(1211)	1.2436	25.490	3038											
66.189	13.853	3268	317.3(1019)	1.2672	25.510	2841	1.133	3219	2.409	0.22520	21.623	0.3749	3493	11.264	161.6	0.49	0.68
COMBUSTOR	0	46	39 3														
66.565	27.133	3843	522.9(1224)	1.2405	25.537	3047											
66.565	13.948	3365	336.5(1053)	1.2623	25.559	2874	1.062	3054	2.417	0.20936	21.623	0.4032	3493	9.937	161.5	0.49	0.70
COMBUSTOR REGEN	47	40 21															
66.565	27.133	4141	650.7(1333)	1.2228	25.499	3142											
66.565	12.447	3574	416.8(1127)	1.2515	25.550	2950	1.160	3421	2.449	0.20936	21.623	0.4032	3585	11.131	165.8	0.49	0.70
NOZZLE AE	48	41 4															
88.801	27.133	3843	522.9(1205)	1.2405	25.537	3047											
88.801	0.739	1720	-228.5(497)	1.3265	25.568	2106	2.911	6132	2.417	0.04358	21.623	1.9371	4487	4.153	207.5	0.49	0.70
NOZZLE PO	49	42 4															
88.801	27.133	3843	522.9(1205)	1.2405	25.537	3047											
88.801	0.387	1463	-308.2(417)	1.3401	25.568	1953	3.302	6449	2.417	0.02824	21.623	2.9900	4631	2.830	214.2	0.49	0.70
NOZZLE AE REGEN	50	43 4															
88.801	27.133	4141	650.7(1333)	1.2228	25.499	3142											
88.801	0.803	1940	-158.0(567)	1.3167	25.568	2229	2.854	6362	2.449	0.04358	21.623	1.9372	4674	4.308	216.2	0.49	0.70
NOZZLE PO REGEN	51	44 4															
88.801	27.133	4141	650.7(1333)	1.2228	25.499	3142											
88.801	0.387	1623	-258.9(467)	1.3313	25.568	2050	3.291	6746	2.449	0.02663	21.623	3.1698	4849	2.792	224.2	0.49	0.70
FICTIVE COMBUSTR	71	64 0															
66.565	276.500	4473	522.9(1440)	1.2165	26.283	3208											
66.565	0.387	1016	-688.5(279)	1.3610	26.360	1615	4.821	7786	2.257	0.05062	21.623	1.6679	5398	6.124	249.6	0.49	1.00
FICTIVE NOZZLE	72	65 0															
88.801	17.805	3789	502.0(1204)	1.2412	25.537	3026											
88.801	0.910	1970	-148.3(577)	1.3154	25.568	2245	2.541	5704	2.444	0.04358	21.623	1.9371	4285	3.864	196.2	0.49	0.70

READING = 0061 BLOCK = 110 TIME = 198.662 MACH 6.0 PT = 744.999 TT = 2988.8

XABS	P-IB	P-OB	PDA	QBX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.050E 00	0.000	-4.553E-01	0.000	0.000	0.000	2.470E-02	2.712E 00	1.409E-03	0.000	0.000
1.836E 01	1.050E 00	0.000	-3.498E 01	0.000	0.000	0.000	1.634E 02	2.712E 00	1.409E-03	0.000	0.000
3.070E 01	2.220E 00	0.000	-1.675E 02	0.000	0.000	0.000	5.053E 02	5.733E 00	2.960E-03	0.000	0.000
3.508E 01	3.922E 00	0.000	-3.666E 02	0.000	0.000	0.000	6.804E 02	1.013E 01	5.265E-03	0.000	0.000
3.555E 01	4.015E 00	0.000	-4.028E 02	0.000	0.000	0.000	7.013E 02	1.037E 01	5.389E-03	0.000	0.000
3.606E 01	3.925E 00	0.000	-4.430E 02	-2.573E 02	-2.573E 02	0.000	7.246E 02	1.014E 01	5.268E-03	0.000	0.000
3.648E 01	4.247E 00	0.000	-4.780E 02	-2.635E 02	-2.635E 02	0.000	7.443E 02	1.097E 01	5.701E-03	0.000	0.000
3.670E 01	4.231E 00	5.672E 00	-5.551E 02	-2.669E 02	-2.669E 02	0.000	7.548E 02	1.093E 01	5.680E-03	1.465E 01	7.614E-03
3.671E 01	4.231E 00	5.706E 00	-5.552E 02	-2.670E 02	-2.670E 02	0.000	7.551E 02	1.093E 01	5.679E-03	1.474E 01	7.662E-03
3.701E 01	4.210E 00	7.492E 00	-5.586E 02	-2.717E 02	-2.717E 02	0.000	7.864E 02	1.087E 01	5.651E-03	1.935E 01	1.006E-02
3.737E 01	4.071E 00	9.650E 00	-5.563E 02	-2.776E 02	-2.776E 02	0.000	8.247E 02	1.051E 01	5.464E-03	2.492E 01	1.295E-02
3.803E 01	3.820E 00	1.251E 01	-5.362E 02	-2.889E 02	-2.889E 02	0.000	8.953E 02	9.865E 00	5.128E-03	3.231E 01	1.679E-02
3.875E 01	1.151E 01	1.566E 01	-5.465E 02	-3.230E 02	-3.078E 02	-1.522E 01	9.754E 02	2.971E 01	1.544E-02	4.043E 01	2.101E-02
3.883E 01	1.241E 01	1.602E 01	-5.506E 02	-3.273E 02	-3.108E 02	-1.646E 01	9.850E 02	3.204E 01	1.666E-02	4.138E 01	2.151E-02
3.901E 01	1.428E 01	1.691E 01	-5.579E 02	-3.368E 02	-3.178E 02	-1.900E 01	1.005E 03	3.688E 01	1.917E-02	4.366E 01	2.269E-02
3.950E 01	1.854E 01	1.937E 01	-5.816E 02	-3.680E 02	-3.419E 02	-2.605E 01	1.061E 03	4.787E 01	2.488E-02	5.002E 01	2.600E-02
3.985E 01	2.278E 01	2.115E 01	-5.943E 02	-3.951E 02	-3.640E 02	-3.110E 01	1.102E 03	5.884E 01	3.058E-02	5.462E 01	2.839E-02
4.000E 01	2.452E 01	2.021E 01	-6.008E 02	-4.075E 02	-3.743E 02	-3.316E 01	1.119E 03	6.333E 01	3.292E-02	5.218E 01	2.712E-02
4.032E 01	3.351E 01	1.810E 01	-6.270E 02	-4.365E 02	-3.988E 02	-3.774E 01	1.156E 03	6.654E 01	4.498E-02	4.674E 01	2.430E-02
4.040E 01	3.559E 01	2.069E 01	-6.349E 02	-4.434E 02	-4.046E 02	-3.880E 01	1.165E 03	9.192E 01	4.778E-02	5.344E 01	2.778E-02
4.041E 01	3.587E 01	2.104E 01	-6.357E 02	-4.444E 02	-4.054E 02	-3.894E 01	1.166E 03	9.264E 01	4.815E-02	5.433E 01	2.824E-02
4.083E 01	4.762E 01	3.566E 01	-6.720E 02	-4.846E 02	-4.397E 02	-4.487E 01	1.216E 03	1.230E 02	6.393E-02	9.210E 01	4.787E-02
4.132E 01	6.119E 01	4.375E 00	-7.608E 02	-5.336E 02	-4.821E 02	-5.156E 01	1.274E 03	1.580E 02	8.213E-02	1.130E 01	5.872E-03
4.150E 01	6.604E 01	4.182E 00	-8.140E 02	-5.519E 02	-4.980E 02	-5.390E 01	1.294E 03	1.705E 02	8.864E-02	1.080E 01	5.614E-03
4.182E 01	6.384E 01	3.825E 00	-9.100E 02	-5.871E 02	-5.289E 02	-5.821E 01	1.333E 03	1.649E 02	8.570E-02	9.878E 00	5.134E-03
4.246E 01	5.955E 01	3.525E 00	-1.072E 03	-6.672E 02	-5.902E 02	-7.702E 01	1.408E 03	1.538E 02	7.993E-02	9.104E 00	4.732E-03
4.281E 01	5.464E 01	3.360E 00	-1.147E 03	-7.165E 02	-6.227E 02	-9.585E 01	1.450E 03	1.411E 02	7.334E-02	8.678E 00	4.511E-03
4.282E 01	5.450E 01	3.356E 00	-1.149E 03	-7.200E 02	-6.236E 02	-9.647E 01	1.451E 03	1.407E 02	7.316E-02	8.666E 00	4.504E-03
4.288E 01	5.359E 01	3.325E 00	-1.162E 03	-7.301E 02	-6.294E 02	-1.006E 02	1.459E 03	1.384E 02	7.193E-02	8.587E 00	4.463E-03
4.431E 01	3.358E 01	1.891E 01	-1.318E 03	-9.809E 02	-7.454E 02	-2.355E 02	1.631E 03	8.672E 01	4.507E-02	4.885E 01	2.539E-02
4.480E 01	2.670E 01	2.427E 01	-1.327E 03	-1.077E 03	-7.797E 02	-2.972E 02	1.690E 03	6.895E 01	3.584E-02	6.269E 01	3.258E-02
4.560E 01	2.962E 01	3.307E 01	-1.319E 03	-1.233E 03	-8.326E 02	-3.999E 02	1.789E 03	7.650E 01	3.976E-02	8.541E 01	4.440E-02
4.625E 01	3.196E 01	5.319E 01	-1.292E 03	-1.358E 03	-8.736E 02	-4.848E 02	1.868E 03	8.255E 01	4.291E-02	8.572E 01	4.456E-02
4.626E 01	3.200E 01	3.320E 01	-1.291E 03	-1.360E 03	-8.742E 02	-4.861E 02	1.869E 03	8.264E 01	4.295E-02	8.573E 01	4.456E-02
4.632E 01	3.222E 01	3.321E 01	-1.288E 03	-1.372E 03	-8.780E 02	-4.942E 02	1.876E 03	8.320E 01	4.324E-02	8.576E 01	4.457E-02
4.731E 01	3.581E 01	3.339E 01	-1.228E 03	-1.571E 03	-9.383E 02	-6.330E 02	1.998E 03	9.248E 01	4.807E-02	8.623E 01	4.482E-02
4.811E-01	3.551E 01	3.354E 01	-1.153E 03	-1.753E 03	-9.848E 02	-7.487E 02	2.097E 03	9.171E 01	4.767E-02	8.661E 01	4.502E-02
4.884E 01	3.367E 01	3.367E 01	-1.038E 03	-1.881E 03	-1.026E 03	-8.553E 02	2.189E 03	8.696E 01	4.520E-02	8.696E 01	4.520E-02
5.028E 01	2.063E 01	2.063E 01	-8.360E 02	-2.145E 03	-1.102E 03	-1.023E 03	2.369E 03	5.328E 01	2.769E-02	5.328E 01	2.769E-02
5.029E 01	2.054E 01	2.054E 01	-8.349E 02	-2.127E 03	-1.102E 03	-1.024E 03	2.370E 03	5.305E 01	2.757E-02	5.305E 01	2.757E-02
5.082E 01	1.574E 01	1.574E 01	-7.848E 02	-2.194E 03	-1.129E 03	-1.065E 03	2.437E 03	4.065E 01	2.113E-02	4.065E 01	2.113E-02
5.223E 01	1.537E 01	1.537E 01	-6.697E 02	-2.367E 03	-1.195E 03	-1.161E 03	2.614E 03	3.971E 01	2.064E-02	3.971E 01	2.064E-02
5.433E 01	1.144E 01	1.144E 01	-5.221E 02	-2.575E 03	-1.283E 03	-1.291E 03	2.880E 03	2.954E 01	1.535E-02	2.954E 01	1.535E-02
5.483E 01	1.049E 01	1.049E 01	-4.936E 02	-2.620E 03	-1.303E 03	-1.318E 03	2.944E 03	2.709E 01	1.408E-02	2.709E 01	1.408E-02
5.558E 01	9.434E 00	9.434E 00	-4.551E 02	-2.686E 03	-1.330E 03	-1.356E 03	3.040E 03	2.436E 01	1.266E-02	2.436E 01	1.266E-02
5.576E 01	9.187E 00	9.187E 00	-4.467E 02	-2.700E 03	-1.336E 03	-1.365E 03	3.062E 03	2.372E 01	1.233E-02	2.372E 01	1.233E-02
5.634E 01	6.201E 00	8.362E 00	-3.221E 02	-2.747E 03	-1.355E 03	-1.392E 03	3.102E 03	1.601E 01	8.324E-03	2.160E 01	1.122E-02
5.777E 01	5.880E 00	5.880E 00	-2.714E 02	-2.849E 03	-1.397E 03	-1.452E 03	3.209E 03	1.518E 01	7.892E-03	1.518E 01	7.892E-03
5.782E 01	7.650E 00	5.784E 00	-2.698E 02	-2.853E 03	-1.398E 03	-1.455E 03	3.216E 03	1.976E 01	1.027E-02	1.494E 01	7.763E-03
5.796E 01	7.650E 00	5.540E 00	-2.661E 02	-2.862E 03	-1.402E 03	-1.460E 03	3.234E 03	1.976E 01	1.027E-02	1.431E 01	7.436E-03
5.804E 01	5.400E 00	5.400E 00	-2.639E 02	-2.867E 03	-1.404E 03	-1.463E 03	3.244E 03	1.395E 01	7.249E-03	1.395E 01	7.249E-03
5.832E 01	4.912E 00	4.912E 00	-2.572E 02	-2.883E 03	-1.411E 03	-1.472E 03	3.280E 03	1.269E 01	6.594E-03	1.269E 01	6.594E-03
5.855E 01	4.446E 00	4.446E 00	-2.526E 02	-2.896E 03	-1.417E 03	-1.479E 03	3.309E 03	1.148E 01	5.967E-03	1.148E 01	5.967E-03
5.927E 01	2.950E 00	2.950E 00	-2.426E 02	-2.932E 03	-1.433E 03	-1.499E 03	3.402E 03	7.618E 00	3.960E-03	7.618E 00	3.960E-03
6.029E 01	9.000E 00	9.000E 00	-2.287E 02	-2.984E 03	-1.454E 03	-1.530E 03	3.532E 03	2.324E 01	1.208E-02	2.324E 01	1.208E-02
6.230E 01	9.725E 00	9.725E 00	-2.265E 02	-3.100E 03	-1.489E 03	-1.611E 03	3.790E 03	2.511E 01	1.305E-02	2.511E 01	1.305E-02

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CA-ALL	P-IB/PSO	P-IB/PIO	P-OB/PSO	-P-OB/PIO
6.372E 01	1.226E 01	1.226E 01	-2.265E 02	-3.189E 03	-1.516E 03	-1.673E 03	3.972E 03	3.167E 01	1.646E-02	3.167E 01	1.646E-02
6.619E 01	1.385E 01	1.385E 01	-2.265E 02	-3.373E 03	-1.578E 03	-1.795E 03	4.289E 03	3.577E 01	1.859E-02	3.577E 01	1.859E-02
6.656E 01	1.380E 01	1.410E 01	-2.265E 02	-3.405E 03	-1.589E 03	-1.816E 03	4.337E 03	3.564E 01	-1.852E-02	3.640E 01	1.892E-02
6.660E 01	1.380E 01	1.412E 01	-2.265E 02	-3.409E 03	-1.591E 03	-1.818E 03	4.342E 03	3.564E 01	1.852E-02	3.647E 01	1.895E-02
6.680E 01	1.311E 01	1.425E 01	-2.265E 02	-3.426E 03	-1.597E 03	-1.829E 03	4.368E 03	3.384E 01	1.759E-02	3.680E 01	1.913E-02
6.846E 01	7.340E 00	6.370E 00	-1.122E 02	-3.542E 03	-1.637E 03	-1.905E 03	4.583E 03	1.896E 01	9.852E-03	1.645E 01	8.550E-03
6.913E 01	5.407E 00	6.337E 00	1.659E 01	-3.578E 03	-1.648E 03	-1.929E 03	4.665E 03	1.396E 01	7.257E-03	1.637E 01	8.507E-03
6.990E 01	3.185E 00	4.910E 00	1.520E 02	-3.615E 03	-1.659E 03	-1.956E 03	4.760E 03	8.225E 00	4.275E-03	1.268E 01	6.590E-03
7.062E 01	2.511E 00	3.975E 00	2.422E 02	-3.649E 03	-1.666E 03	-1.983E 03	4.848E 03	6.485E 00	3.370E-03	9.232E 00	4.799E-03
7.123E 01	1.940E 00	2.969E 00	3.010E 02	-3.676E 03	-1.671E 03	-2.005E 03	4.922E 03	5.010E 00	2.604E-03	7.667E 00	3.985E-03
7.218E 01	1.351E 00	2.025E 00	3.657E 02	-3.712E 03	-1.678E 03	-2.034E 03	5.036E 03	3.490E 00	1.814E-03	5.229E 00	2.718E-03
7.261E 01	1.085E 00	1.867E 00	3.876E 02	-3.726E 03	-1.680E 03	-2.046E 03	5.088E 03	2.802E 00	1.456E-03	4.822E 00	2.506E-03
7.414E 01	7.890E-01	1.305E 00	4.460E 02	-3.766E 03	-1.687E 03	-2.079E 03	5.273E 03	2.038E 00	1.059E-03	3.370E 00	1.752E-03
7.429E 01	7.600E-01	1.151E 00	4.502E 02	-3.769E 03	-1.688E 03	-2.082E 03	5.290E 03	1.963E 00	1.020E-03	2.972E 00	1.545E-03
7.504E 01	6.302E-01	3.800E-01	4.753E 02	-3.788E 03	-1.691E 03	-2.098E 03	5.374E 03	1.627E 00	8.459E-04	9.813E-01	5.101E-04
7.505E 01	6.295E-01	3.759E-01	4.760E 02	-3.788E 03	-1.691E 03	-2.098E 03	5.375E 03	1.626E 00	8.450E-04	9.707E-01	5.045E-04
7.637E 01	4.000E-01	0.000	4.869E 02	-3.826E 03	-1.695E 03	-2.131E 03	5.426E 03	1.033E 00	5.369E-04	0.000	0.000
7.922E 01	1.095E 00	0.000	5.168E 02	-3.853E 03	-1.703E 03	-2.131E 03	5.525E 03	2.828E 00	1.470E-03	0.000	0.000
8.312E-01	8.500E-01	0.000	5.584E 02	-3.841E 03	-1.710E 03	-2.131E 03	5.630E 03	2.195E 00	1.141E-03	0.000	0.000
8.593E 01	6.950E-01	0.000	5.755E 02	-3.847E 03	-1.716E 03	-2.131E 03	5.684E 03	1.795E 00	9.329E-04	0.000	0.000
8.879E 01	9.450E-01	0.000	5.953E 02	-3.857E 03	-1.726E 03	-2.131E 03	5.707E 03	2.440E 00	1.268E-03	0.000	0.000
8.880E 01	9.455E-01	0.000	5.953E 02	-3.857E 03	-1.726E 03	-2.131E 03	5.707E 03	2.442E 00	1.269E-03	0.000	0.000

READING = 0061 BLOCK = 110 TIME = 198.662 MACH 6.0 PT = 744.999 TT = 2988.8

X	DDRAG	CDRAG	CF	MC
4.080E 01	1.242E 02	1.242E 02	2.380E-03	5.484E-02
4.041E 01	2.106E-01	1.244E 02	2.581E-03	6.724E-02
4.083E 01	8.877E 00	1.333E 02	2.775E-03	8.067E-02
4.132E 01	1.028E 01	1.436E 02	2.845E-03	6.709E-02
4.150E 01	3.713E 00	1.473E 02	2.902E-03	6.812E-02
4.182E 01	6.700E 00	1.540E 02	2.982E-03	6.365E-02
4.246E 01	1.254E 01	1.665E 02	3.113E-03	5.589E-02
4.281E 01	6.725E 00	1.732E 02	3.272E-03	5.059E-02
4.282E 01	1.833E-01	1.734E 02	3.029E-03	5.480E-02
4.288E 01	1.157E 00	1.746E 02	2.998E-03	5.468E-02
4.431E 01	2.384E 01	1.984E 02	3.115E-03	4.707E-02
4.480E 01	7.673E 00	2.061E 02	3.124E-03	4.583E-02
4.560E 01	1.201E 01	2.181E 02	3.124E-03	5.076E-02
4.625E 01	9.414E 00	2.275E 02	3.423E-03	4.753E-02
4.626E 01	1.448E-01	2.277E 02	3.174E-03	5.214E-02
4.632E 01	8.151E-01	2.285E 02	3.130E-03	5.301E-02
4.731E 01	1.266E 01	2.411E 02	3.091E-03	5.353E-02
4.811E 01	9.164E 00	2.503E 02	3.049E-03	5.262E-02
4.884E 01	7.535E 00	2.578E 02	2.986E-03	5.130E-02
5.028E 01	1.453E 01	2.722E 02	3.074E-03	3.882E-02
5.029E 01	9.858E-02	2.723E 02	2.835E-03	4.216E-02
5.082E 01	5.015E 00	2.773E 02	2.765E-03	3.650E-02
5.223E 01	1.212E 01	2.894E 02	2.647E-03	3.563E-02
5.433E 01	1.563E 01	3.050E 02	2.692E-03	2.775E-02
5.483E 01	3.563E 00	3.086E 02	2.760E-03	2.541E-02
5.558E 01	5.242E 00	3.138E 02	2.722E-03	2.365E-02
5.576E 01	1.194E 00	3.150E 02	2.722E-03	2.316E-02
5.634E 01	1.856E 00	3.169E 02	2.599E-03	1.911E-02
5.777E 01	4.445E 00	3.213E 02	2.673E-03	1.588E-02
5.782E 01	2.844E-01	3.216E 02	2.653E-03	1.746E-02
5.796E 01	7.148E-01	3.223E 02	2.745E-03	1.674E-02
5.804E 01	4.699E-01	3.228E 02	3.263E-03	1.255E-02
5.832E 01	1.633E 00	3.244E 02	2.532E-03	1.452E-02
5.855E 01	1.150E 00	3.256E 02	2.451E-03	1.380E-02
5.927E 01	3.629E 00	3.292E 02	2.333E-03	1.091E-02
6.029E 01	4.607E 00	3.338E 02	2.334E-03	2.303E-02
6.230E 01	9.364E 00	3.432E 02	2.965E-03	1.950E-02
6.372E 01	7.340E 00	3.505E 02	3.024E-03	2.170E-02
6.619E 01	1.192E 01	3.624E 02	3.174E-03	2.129E-02
6.656E 01	1.654E 00	3.641E 02	3.294E-03	1.994E-02
6.660E 01	1.694E-01	3.643E 02	3.349E-03	2.008E-02
6.680E 01	8.580E-01	3.651E 02	3.343E-03	1.998E-02
6.846E 01	7.389E 00	3.725E 02	3.175E-03	1.476E-02
6.913E 01	2.787E 00	3.753E 02	3.145E-03	1.349E-02
6.990E 01	2.974E 00	3.783E 02	3.078E-03	1.068E-02
7.062E 01	2.426E 00	3.807E 02	3.027E-03	8.817E-03
7.123E 01	1.819E 00	3.825E 02	2.991E-03	7.593E-03
7.218E 01	2.421E 00	3.849E 02	2.929E-03	5.807E-03
7.261E 01	9.551E-01	3.859E 02	2.907E-03	5.262E-03
7.414E 01	2.951E 00	3.889E 02	2.847E-03	4.069E-03
7.429E 01	2.413E-01	3.891E 02	2.832E-03	3.798E-03
7.504E 01	9.540E-01	3.900E 02	2.723E-03	2.328E-03
7.505E 01	1.463E-03	3.900E 02	2.722E-03	2.319E-03
7.637E 01	4.340E-01	3.905E 02	2.677E-03	1.956E-03
7.922E 01	1.090E 00	3.916E 02	2.829E-03	4.167E-03
8.312E 01	1.422E 00	3.930E 02	2.769E-03	3.419E-03

X	DDRAG	CDRAG	CF	HC
8.593E 01	6.376E-01	3.936E 02	2.723E-03	2.918E-03
8.879E 01	2.732E-01	3.939E 02	2.761E-03	3.669E-03
8.880E 01	0.000	3.939E 02	2.761E-03	3.670E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	207.	(LBF)
MEASURED THRUST	215.	(LBF)
CALCULATED SPECIFIC IMPULSE	600.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	624.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.0829	
MEASURED THRUST COEFFICIENT	0.0862	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	4463.	(LBF)
NET THRUST	385.	(LBF)
SPECIFIC IMPULSE	1118.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.1544	

MOMENTUM AND FORCES

INLET FRICTION DRAG	124.2	(LBF)
INLET MOMENTUM CHANGE	-759.1	(LBF)
COMBUSTOR FRICTION DRAG	239.9	(LBF)
COMBUSTOR STRUT DRAG	-35.56	(LBF)
COMBUSTOR MOMENTUM CHANGE	174.	(LBF)
NOZZLE FRICTION DRAG	29.80	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	792.	(LBF)
NOZZLE PRESSURE INTEGRAL	822.	(LBF)
EXTERNAL FRICTION DRAG	62.41	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1107.	(LBF)
TOTAL EXTERNAL DRAG	-1169.	(LBF)
TOTAL STRUT DRAG	-35.56	(LBF)
CAVITY FORCE	-987.	(LBF)
CALCULATED LOAD CELL FORCE	-1949.	(LBF)
MEASURED LOAD CELL FORCE	-1941.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, -153.3, -109.1,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.8247	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.709	(IN)
NOZZLE SHROUD TRAILING EDGE	75.049	(IN)
NOZZLE PLUG TRAILING EDGE	88.801	(IN)
STRUT LEADING EDGE	57.965	(IN)
STRUT TRAILING EDGE	66.565	(IN)
COMBUSTOR EXIT	66.565	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.7843	
ADDITIVE DRAG COEFFICIENT	0.0285	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1818	
DELTA PT2	0.1412	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3711	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1846	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9022	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9136	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9299	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8903	
ENTHALPY AT P0 - SUPERSONIC	-3.65	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	24.01	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0162	
EQUIVALENCE RATIO	0.492	
COMBUSTOR EFFICIENCY	0.702	
TOTAL PRESSURE RATIO	0.0961	
COMBUSTOR EFFECTIVENESS	0.6308	

INJECTOR DISCHARGE COEFFICIENTS 0.4534, 0.4212, 0.7521, 0.7228

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9549	
NOZZLE COEFFICIENT - CT	0.8839	
PROCESS EFFICIENCY	0.9038	
KINETIC ENERGY EFFICIENCY	0.8997	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.810	B
1C	44.300	
2A	50.285	D
2C	46.250	E
3A	55.575	
3B	57.760	
4	46.310	

Reading 61

t = 205.86 sec.

3/04/75

READING = 0061 BLOCK = 118 TIME = 205.862 MACH 6.0 PT = 744.999 TT = 2991.1

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	744.999	2991	666.9(	792)	1.2931	28.955	2577											
0.000	0.388	405	*31.6(	97)	1.3989	28.953	987	5.992	5912	1.827	0.10593	21.166	0.7801	4967	9.736	187.4		
SPIKE TIP NS		2	0	6														
0.000	18.712	2991	666.9(	792)	1.2930	28.954	2577											
0.600	17.057	2929	648.1(	774)	1.2950	28.954	2552	0.380	971	2.079	0.10593	21.166	0.7801	4047	1.596	191.2		
WIND TUNNEL		3	0	0														
0.000	744.999	2991	666.9(	792)	1.2931	28.955	2577											
0.000	0.401	409	*30.6(	98)	1.3989	28.954	992	5.958	5908	1.827	0.10854	21.688	0.7801	4063	9.966	187.5		
SPIKE TIP NS		4	0	0														
0.600	18.712	2991	666.9(	792)	1.2930	28.954	2577											
0.600	16.963	2925	647.0(	773)	1.2951	28.954	2550	0.392	999	2.079	0.10854	21.688	0.7801	4063	1.685	187.5		
INLET THROAT		5	0	4														
40.400	309.615	2906	642.0(	768)	1.2957	28.954	2544											
40.400	18.843	1470	234.2(	363)	1.3497	28.954	1846	2.447	4517	1.878	1.08509	21.166	0.0762	5339	76.175	157.8		
INLET UPNRSK		6	0	3														
40.400	309.615	2908	642.0(	768)	1.2957	28.954	2544											
40.400	16.163	1412	219.0(	348)	1.3530	28.954	1811	2.540	4601	1.878	0.98645	21.166	0.0838	3373	70.526	159.4		
INLET DNNRSK		7	0	4														
40.400	139.419	2908	642.0(	768)	1.2957	28.954	2544											
40.400	119.225	2806	611.3(	738)	1.2990	28.954	2502	0.495	1239	1.933	0.98645	21.166	0.0838	3373	18.995	159.4		
COMBUSTOR	0	8	1	3														
40.410	240.756	3021	642.4(	822)	1.2909	28.249	2620											
40.410	23.673	1756	262.1(	486)	1.3357	28.248	2020	2.160	4362	1.954	1.08757	21.217	0.0762	5339	73.732	157.4	0.07	0.42
COMBUSTOR	0	9	2	202														
40.851	187.014	3254	640.5(	890)	1.2799	28.528	2694											
40.851	35.087	2216	324.7(	580)	1.3147	28.529	2253	1.764	3975	1.984	1.09118	21.217	0.0759	3304	67.406	155.7	0.07	1.00
COMBUSTOR	0	10	3	21														
41.341	161.868	3246	638.2(	887)	1.2800	28.528	2691											
41.341	28.985	2186	316.0(	571)	1.3157	28.529	2239	1.795	4015	1.994	1.07929	21.217	0.0768	3218	67.349	151.7	0.07	1.00
COMBUSTOR	0	11	4	21														
41.500	151.248	3244	637.5(	887)	1.2801	28.528	2690											
41.500	31.063	2257	336.7(	592)	1.3132	28.529	2273	1.707	3879	1.998	1.07245	21.217	0.0772	3173	64.650	149.5	0.07	1.00
COMBUSTOR	0	12	5	21														
41.841	130.186	3238	635.8(	885)	1.2802	28.528	2688											
41.841	31.923	2350	364.0(	619)	1.3100	28.529	2316	1.592	3688	2.008	1.05338	21.217	0.0786	3075	60.370	144.9	0.07	1.00
COMBUSTOR	0	13	6	21														
42.460	102.468	3227	632.1(	881)	1.2804	28.528	2683											
42.460	33.776	2510	411.3(	666)	1.3046	28.529	2389	1.392	3324	2.024	1.00660	21.217	0.0823	2904	52.001	136.9	0.07	1.00
COMBUSTOR	0	14	7	21														
42.826	98.643	2850	633.2(	795)	1.2987	27.268	2598											
42.826	30.894	2164	422.1(	587)	1.3217	27.268	2284	1.423	3249	2.053	0.98998	21.271	0.0839	2812	49.993	132.2	0.15	0.11
COMBUSTOR	0	15	8	21														
42.836	101.656	2771	633.1(	772)	1.3024	27.183	2569											
42.836	30.816	2083	422.5(	563)	1.3254	27.183	2247	1.445	3246	2.044	0.98770	21.271	0.0841	2810	49.829	132.1	0.15	0.02
COMBUSTOR	0	16	9	21														
42.901	99.874	2758	632.6(	768)	1.3030	27.171	2564											
42.901	30.303	2073	423.1(	561)	1.3259	27.170	2243	1.444	3238	2.044	0.98512	21.271	0.0843	2795	49.571	131.4	0.15	0.00
COMBUSTOR	0	17	10	21														
44.310	74.820	2718	620.5(	756)	1.3043	27.169	2547											
44.310	27.803	2145	445.2(	582)	1.3234	27.169	2279	1.300	2962	2.060	0.91327	21.271	0.0909	2606	42.044	122.5	0.15	0.00
COMBUSTOR	0	18	11	21														
44.800	72.379	2702	615.8(	751)	1.3048	27.168	2540											
44.800	26.934	2133	441.7(	579)	1.3238	27.168	2273	1.299	2952	2.061	0.89943	21.271	0.0923	2589	41.262	121.7	0.15	0.00

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	A	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	21														
45.621	73.354	2800	608.0	(779)	1.3000	27.401	2575											
45.621	33.999	2336	464.5	(638)	1.3154	27.501	2366	1.152	2679	2.068	0.88988	21.271	0.0933	2564	37.048	121.5	0.15	0.15
COMBUSTOR	0	20	13	21														
46.250	69.243	2652	617.2	(799)	1.3085	24.935	2631											
46.250	35.405	2259	486.2	(669)	1.3217	24.935	2440	1.050	2561	2.205	0.87323	21.432	0.0958	2575	34.747	120.1	0.38	0.05
COMBUSTOR	0	21	14	21														
46.260	70.892	2562	617.1	(771)	1.3126	24.848	2594											
46.260	35.427	2166	486.2	(641)	1.3260	24.848	2397	1.068	2559	2.194	0.87254	21.432	0.0959	2575	34.703	120.1	0.38	0.01
COMBUSTOR	0	22	15	21														
46.336	71.195	2547	616.3	(766)	1.3133	24.835	2588											
46.336	35.596	2153	486.3	(636)	1.3267	24.835	2391	1.067	2551	2.191	0.86928	21.432	0.0963	2577	34.464	120.2	0.38	0.00
COMBUSTOR	0	23	16	21														
47.310	70.765	2515	606.5	(755)	1.3144	24.833	2573											
47.310	37.773	2160	489.3	(639)	1.3264	24.833	2395	1.011	2422	2.188	0.80932	21.432	0.1034	2614	30.463	122.0	0.38	0.00
COMBUSTOR	0	24	17	21														
48.110	68.994	2490	598.3	(747)	1.3152	24.833	2561											
48.110	35.172	2114	474.4	(624)	1.3281	24.832	2371	1.050	2490	2.186	0.74339	21.432	0.1126	2673	28.763	124.7	0.38	0.00
COMBUSTOR	0	25	18	21														
48.861	68.238	2472	590.6	(741)	1.3158	24.837	2551											
48.861	32.100	2056	454.3	(605)	1.3301	24.837	2340	1.116	2611	2.185	0.66258	21.432	0.1263	2778	26.886	129.6	0.38	0.00
COMBUSTOR	0	26	19	15														
50.301	62.775	2344	588.0	(760)	1.3230	22.751	2603											
50.301	21.003	1783	391.7	(564)	1.3435	22.751	2288	1.370	3134	2.326	0.54360	21.609	0.1552	2940	26.476	136.0	0.64	0.01
COMBUSTOR	0	27	20	0														
50.311	62.777	2344	587.9	(760)	1.3230	22.751	2603											
50.311	20.926	1781	391.0	(563)	1.3436	22.751	2287	1.373	3138	2.326	0.54290	21.609	0.1554	2941	26.479	136.1	0.64	0.01
COMBUSTOR	0	28	21	3														
50.841	63.778	2308	583.8	(747)	1.3245	22.730	2586											
50.841	16.842	1650	355.2	(519)	1.3494	22.730	2207	1.532	3382	2.320	0.50774	21.609	0.1662	2988	26.684	138.3	0.64	0.00
COMBUSTOR	0	29	22	4														
52.251	54.959	2536	573.9	(825)	1.3137	22.953	2686											
52.251	15.862	1868	338.5	(590)	1.3376	22.953	2327	1.475	3432	2.360	0.43273	21.609	0.1950	3097	23.080	143.3	0.64	0.08
COMBUSTOR	0	30	23	5														
54.351	46.163	2867	561.2	(939)	1.2979	23.286	2819											
54.351	14.662	2186	315.1	(695)	1.3215	23.287	2485	1.413	3509	2.407	0.35468	21.609	0.2379	3250	19.341	150.4	0.64	0.21
COMBUSTOR	0	31	24	3														
54.851	46.357	2851	558.4	(933)	1.2986	23.278	2812											
54.851	15.021	2108	291.3	(668)	1.3244	23.278	2442	1.497	3656	2.405	0.34018	21.609	0.2480	3283	19.328	151.9	0.64	0.20
COMBUSTOR	0	32	25	4														
55.601	44.954	2902	554.4	(950)	1.2960	23.336	2831											
55.601	12.067	2126	274.6	(675)	1.3230	23.336	2448	1.528	3741	2.412	0.32067	21.609	0.2631	3326	18.644	153.9	0.64	0.23
COMBUSTOR	0	33	26	3														
55.760	44.704	2911	553.5	(953)	1.2956	23.346	2834											
55.760	11.864	2127	271.0	(674)	1.3229	23.347	2448	1.536	3760	2.413	0.31683	21.609	0.2663	3335	18.514	154.5	0.64	0.23
COMBUSTOR	0	34	27	4														
56.361	38.340	3075	550.7	(1011)	1.2875	23.510	2894											
56.361	8.869	2187	227.5	(692)	1.3186	23.512	2469	1.628	4021	2.439	0.24808	21.609	0.3401	3473	15.502	160.7	0.64	0.29
COMBUSTOR	0	35	28	4														
57.786	42.422	2928	544.9	(959)	1.2945	23.384	2839											
57.786	6.539	1873	168.5	(586)	1.3323	23.385	2303	1.884	4340	2.418	0.22929	21.609	0.3679	3531	15.466	163.4	0.64	0.24
COMBUSTOR	0	36	29	4														
57.841	35.578	3213	544.8	(1059)	1.2804	23.660	2940											
57.841	8.525	2317	215.2	(735)	1.3120	23.662	2527	1.607	4061	2.455	0.22873	21.609	0.3689	3533	14.435	163.5	0.64	0.34
COMBUSTOR	0	37	30	3														
57.981	35.724	3198	544.3	(1053)	1.2811	23.646	2935											
57.981	8.301	2288	210.2	(725)	1.3132	23.648	2513	1.627	4088	2.453	0.22701	21.609	0.3717	3536	14.423	163.6	0.64	0.34

READING = 0061 BLOCK = 118 TIME = 205.862 MACH 6.0 PT = 744.999 TI = 2991.1

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	R	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 10														
58.061	48.141	2797	544.0(914)	1.3006	23.264	2788											
58.061	5.659	1660	143.7(516)	1.3428	23.265	2183	2.050	4475	2.395	0.22963	21.609	0.3674	3538	15.971	163.7	0.64	0.20
COMBUSTOR	0	39	32 4														
58.341	56.629	2659	543.1(866)	1.3070	23.140	2733											
58.341	4.762	1436	118.7(443)	1.3554	23.140	2045	2.255	4609	2.368	0.22883	21.609	0.3687	3545	16.389	164.1	0.64	0.15
COMBUSTOR	0	40	33 4														
58.567	61.535	2603	542.5(846)	1.3095	23.091	2709											
58.567	4.397	1342	107.5(413)	1.3609	23.091	1983	2.352	4665	2.355	0.22836	21.609	0.3695	3549	16.556	164.3	0.64	0.14
COMBUSTOR	0	41	34 5														
59.291	86.713	2414	540.5(782)	1.3181	22.928	2627											
59.291	3.225	1030	72.6(315)	1.3792	22.928	1755	2.757	4839	2.304	0.22482	21.609	0.3753	3560	16.906	164.7	0.64	0.08
COMBUSTOR	0	42	35 6														
60.311	32.425	3500	537.7(1160)	1.2645	23.967	3030											
60.311	10.087	2712	238.1(870)	1.2940	23.975	2698	1.435	3871	2.480	0.22338	21.609	0.3777	3576	13.440	165.5	0.64	0.45
COMBUSTOR	0	43	36 4														
62.321	35.112	3392	531.6(1121)	1.2705	23.873	2996											
62.321	9.425	2531	209.1(807)	1.3017	23.878	2619	1.534	4017	2.466	0.23116	21.609	0.3650	3579	14.431	165.6	0.64	0.42
COMBUSTOR	0	44	37 4														
63.741	32.330	3735	527.0(1243)	1.2498	24.242	3094											
63.741	15.381	3110	280.0(1010)	1.2758	24.258	2852	1.233	3515	2.492	0.23742	21.609	0.3553	3579	12.971	165.6	0.64	0.55
COMBUSTOR	0	45	38 4														
66.205	29.921	3862	517.5(1288)	1.2407	24.405	3124											
66.205	15.296	3377	320.0(1105)	1.2625	24.427	2946	1.067	3144	2.504	0.22505	21.609	0.3749	3580	10.995	165.7	0.64	0.60
COMBUSTOR	0	46	39 3														
66.581	27.762	3876	515.9(1293)	1.2391	24.425	3127											
66.581	15.163	3439	336.1(1128)	1.2594	24.447	2968	1.011	2999	2.510	0.20922	21.609	0.4032	3580	9.752	165.7	0.64	0.61
COMBUSTOR REGEN		47	40 21														
66.581	27.762	4163	645.2(1402)	1.2219	24.389	3220											
66.581	10.369	3448	340.4(1131)	1.2577	24.446	2970	1.315	3905	2.542	0.20922	21.609	0.4032	3694	12.696	170.9	0.64	0.61
NOZZLE AE		48	41 4														
88.817	27.762	3876	515.9(1273)	1.2391	24.425	3127											
88.817	0.761	1740	-276.2(527)	1.3260	24.458	2166	2.907	6296	2.510	0.04355	21.609	1.9371	4606	4.261	213.1	0.64	0.61
NOZZLE PO		49	42 4														
88.817	27.762	3876	515.9(1273)	1.2391	24.425	3127											
88.817	0.388	1471	-364.0(439)	1.3401	24.458	2002	3.315	6636	2.510	0.02768	21.609	3.0481	4759	2.854	220.2	0.64	0.61
NOZZLE AE REGEN		50	43 4														
88.817	27.762	4163	645.2(1402)	1.2219	24.389	3220											
88.817	0.824	1954	-204.8(598)	1.3165	24.458	2287	2.852	6522	2.542	0.04355	21.609	1.9372	4789	4.414	221.6	0.64	0.61
NOZZLE PO REGEN		51	44 4														
88.817	27.762	4163	645.2(1402)	1.2219	24.389	3220											
88.817	0.388	1624	-314.3(489)	1.3317	24.458	2097	3.304	6929	2.542	0.02617	21.609	3.2243	4974	2.818	230.2	0.64	0.61
FICTIVE COMBUSTR		71	64 0														
66.581	309.615	4838	515.9(1640)	1.1977	25.536	3359											
66.581	0.388	1145	-881.9(326)	1.3489	25.697	1729	4.837	8363	2.346	0.04706	21.609	1.7928	5795	6.117	268.2	0.64	1.00
FICTIVE NOZZLE		72	65 0														
88.817	21.395	3816	490.8(1269)	1.2410	24.428	3104											
88.817	0.856	1872	-232.4(570)	1.3200	24.458	2241	2.684	6015	2.525	0.04355	21.609	1.9371	4465	4.071	206.6	0.64	0.61

READING = 0061 BLOCK = 118 TIME = 205.802 MACH 6.0 PT = 744.999 TT = 2991.1 PAGE 4

XABS	P-IB	P-OB	PDA	QUK	Q-IB	Q-OB	CA-ALL	P-IB/PS0	P-IB/P10	P-OB/PS0	P-OB/P10
6.981E-01	1.045E 00	0.000	-4.556E-01	0.000	0.000	0.000	2.470E-02	2.69-E 00	1.403E-03	0.000	0.000
1.836E 01	1.045E 00	0.000	-3.481E 01	0.000	0.000	0.000	1.634E 02	2.696E 00	1.403E-03	0.000	0.000
3.070E 01	2.235E 00	0.000	-1.678E 02	0.000	0.000	0.000	5.053E 02	5.767E 00	3.000E-03	0.000	0.000
3.508E 01	3.910E 00	0.000	-3.669E 02	0.000	0.000	0.000	6.804E 02	1.009E 01	5.248E-03	0.000	0.000
3.555E 01	4.025E 00	0.000	-4.031E 02	0.000	0.000	0.000	7.013E 02	1.039E 01	5.403E-03	0.000	0.000
3.606E 01	3.945E 00	0.000	-4.435E 02	-5.284E 02	-3.284E 02	0.000	7.246E 02	1.018E 01	5.295E-03	0.000	0.000
3.648E 01	4.252E 00	0.000	-4.786E 02	-5.563E 02	-3.363E 02	0.000	7.443E 02	1.097E 01	5.708E-03	0.000	0.000
3.672E 01	4.238E 00	5.677E 00	-5.571E 02	-5.410E 02	-3.410E 02	0.000	7.556E 02	1.093E 01	5.688E-03	1.465E 01	7.620E-03
3.672E 01	4.237E 00	5.713E 00	-5.572E 02	-3.411E 02	-3.411E 02	0.000	7.559E 02	1.093E 01	5.688E-03	1.474E 01	7.668E-03
3.701E 01	4.220E 00	7.432E 00	-5.606E 02	-3.468E 02	-3.468E 02	0.000	7.855E 02	1.089E 01	5.664E-03	1.918E 01	9.976E-03
3.739E 01	4.082E 00	9.725E 00	-5.582E 02	-3.546E 02	-3.546E 02	0.000	8.255E 02	1.053E 01	5.479E-03	2.509E 01	1.305E-02
3.803E 01	3.890E 00	1.248E 01	-5.386E 02	-3.685E 02	-3.685E 02	0.000	8.944E 02	9.934E 00	5.168E-03	3.220E 01	1.675E-02
3.875E 01	1.145E 01	1.558E 01	-5.483E 02	-4.065E 02	-3.901E 02	-1.636E 01	9.745E 02	2.955E 01	1.537E-02	4.020E 01	2.091E-02
3.885E 01	1.252E 01	1.601E 01	-5.528E 02	-4.120E 02	-3.940E 02	-1.795E 01	9.857E 02	3.230E 01	1.680E-02	4.131E 01	2.149E-02
3.901E 01	1.420E 01	1.680E 01	-5.596E 02	-4.211E 02	-4.007E 02	-2.045E 01	1.004E 03	3.664E 01	1.906E-02	4.335E 01	2.255E-02
3.950E 01	1.807E 01	1.922E 01	-5.824E 02	-4.532E 02	-4.252E 02	-2.806E 01	1.060E 03	4.664E 01	2.426E-02	4.959E 01	2.580E-02
3.987E 01	1.697E 01	2.105E 01	-5.871E 02	-4.817E 02	-4.479E 02	-3.376E 01	1.103E 03	4.379E 01	2.278E-02	5.431E 01	2.826E-02
4.000E 01	1.659E 01	2.016E 01	-5.868E 02	-4.925E 02	-4.568E 02	-3.574E 01	1.118E 03	4.280E 01	2.227E-02	5.200E 01	2.705E-02
4.034E 01	2.595E 01	1.780E 01	-5.968E 02	-5.224E 02	-4.815E 02	-4.092E 01	1.157E 03	6.696E 01	3.484E-02	4.593E 01	2.389E-02
4.040E 01	2.758E 01	1.924E 01	-6.005E 02	-5.278E 02	-4.859E 02	-4.182E 01	1.164E 03	7.117E 01	3.703E-02	4.965E 01	2.583E-02
4.041E 01	2.786E 01	1.949E 01	-6.009E 02	-5.287E 02	-4.867E 02	-4.197E 01	1.165E 03	7.186E 01	3.739E-02	5.026E 01	2.616E-02
4.085E 01	3.997E 01	3.020E 01	-6.267E 02	-5.695E 02	-5.209E 02	-4.860E 01	1.217E 03	1.031E 02	5.366E-02	7.792E 01	4.054E-02
4.134E 01	5.344E 01	4.525E 00	-7.020E 02	-6.176E 02	-5.618E 02	-5.579E 01	1.275E 03	1.379E 02	7.174E-02	1.168E 01	6.074E-03
4.150E 01	5.782E 01	4.302E 00	-7.436E 02	-6.338E 02	-5.758E 02	-5.808E 01	1.293E 03	1.492E 02	7.762E-02	1.110E 01	5.774E-03
4.184E 01	6.002E 01	5.825E 00	-8.340E 02	-6.699E 02	-6.069E 02	-6.294E 01	1.334E 03	1.549E 02	8.056E-02	9.869E 00	5.134E-03
4.246E 01	6.401E 01	3.540E 00	-9.923E 02	-7.472E 02	-6.646E 02	-8.263E 01	1.407E 03	1.652E 02	8.592E-02	9.134E 00	4.752E-03
4.283E 01	5.842E 01	3.372E 00	-1.077E 03	-8.014E 02	-6.974E 02	-1.040E 02	1.451E 03	1.507E 02	7.841E-02	8.700E 00	4.526E-03
4.284E 01	5.826E 01	3.367E 00	-1.079E 03	-8.030E 02	-6.983E 02	-1.047E 02	1.452E 03	1.503E 02	7.821E-02	8.688E 00	4.520E-03
4.290E 01	5.727E 01	3.337E 00	-1.093E 03	-8.132E 02	-7.040E 02	-1.092E 02	1.460E 03	1.478E 02	7.687E-02	8.611E 00	4.480E-03
4.431E 01	3.570E 01	1.991E 01	-1.259E 03	-1.070E 03	-8.161E 02	-2.535E 02	1.630E 03	9.211E 01	4.792E-02	5.136E 01	2.672E-02
4.480E 01	2.820E 01	2.567E 01	-1.268E 03	-1.170E 03	-8.502E 02	-3.198E 02	1.689E 03	7.276E 01	3.785E-02	6.623E 01	3.445E-02
4.562E 01	3.268E 01	3.532E 01	-1.261E 03	-1.357E 03	-9.042E 02	-4.325E 02	1.790E 03	8.432E 01	4.387E-02	9.112E 01	4.740E-02
4.625E 01	3.612E 01	3.469E 01	-1.237E 03	-1.467E 03	-9.444E 02	-5.223E 02	1.867E 03	9.319E 01	4.848E-02	8.951E 01	4.657E-02
4.626E 01	3.617E 01	3.468E 01	-1.236E 03	-1.469E 03	-9.450E 02	-5.238E 02	1.868E 03	9.333E 01	4.855E-02	8.948E 01	4.655E-02
4.634E 01	3.659E 01	3.461E 01	-1.233E 03	-1.485E 03	-9.497E 02	-5.350E 02	1.877E 03	9.440E 01	4.911E-02	8.929E 01	4.645E-02
4.731E 01	4.191E 01	3.364E 01	-1.184E 03	-1.696E 03	-1.010E 03	-6.862E 02	1.997E 03	1.081E 02	5.625E-02	8.679E 01	4.515E-02
4.811E 01	3.750E 01	3.284E 01	-1.117E 03	-1.872E 03	-1.057E 03	-8.155E 02	2.096E 03	9.676E 01	5.034E-02	8.475E 01	4.409E-02
4.886E 01	3.210E 01	3.210E 01	-1.004E 03	-2.057E 03	-1.099E 03	-9.371E 02	2.190E 03	8.282E 01	4.309E-02	8.282E 01	4.309E-02
5.030E 01	2.100E 01	2.100E 01	-8.064E 02	-2.320E 03	-1.177E 03	-1.143E 03	2.370E 03	5.419E 01	2.819E-02	5.419E 01	2.819E-02
5.031E 01	2.093E 01	2.093E 01	-8.053E 02	-2.322E 03	-1.178E 03	-1.145E 03	2.371E 03	5.399E 01	2.809E-02	5.399E 01	2.809E-02
5.084E 01	1.684E 01	1.684E 01	-7.531E 02	-2.411E 03	-1.205E 03	-1.206E 03	2.437E 03	4.345E 01	2.261E-02	4.345E 01	2.261E-02
5.225E 01	1.586E 01	1.586E 01	-6.322E 02	-2.624E 03	-1.274E 03	-1.351E 03	2.615E 03	4.093E 01	2.129E-02	4.093E 01	2.129E-02
5.435E 01	1.466E 01	1.466E 01	-4.642E 02	-2.898E 03	-1.366E 03	-1.532E 03	2.881E 03	3.783E 01	1.968E-02	3.783E 01	1.968E-02
5.485E 01	1.302E 01	1.302E 01	-4.282E 02	-2.959E 03	-1.387E 03	-1.572E 03	2.945E 03	3.360E 01	1.748E-02	3.360E 01	1.748E-02
5.560E 01	1.207E 01	1.207E 01	-3.797E 02	-3.047E 03	-1.416E 03	-1.631E 03	3.041E 03	3.113E 01	1.620E-02	3.113E 01	1.620E-02
5.576E 01	1.186E 01	1.186E 01	-3.699E 02	-3.064E 03	-1.422E 03	-1.643E 03	3.061E 03	3.061E 01	1.592E-02	3.061E 01	1.592E-02
5.636E 01	6.637E 00	1.110E 01	-2.294E 02	-3.126E 03	-1.443E 03	-1.683E 03	3.102E 03	1.713E 01	8.909E-03	2.864E 01	1.490E-02
5.779E 01	6.539E 00	6.539E 00	-1.666E 02	-3.249E 03	-1.488E 03	-1.761E 03	3.209E 03	1.687E 01	8.777E-03	1.687E 01	8.777E-03
5.784E 01	1.069E 01	6.363E 00	-1.648E 02	-3.253E 03	-1.489E 03	-1.764E 03	3.216E 03	2.758E 01	1.435E-02	1.642E 01	8.541E-03
5.798E 01	1.069E 01	5.915E 00	-1.608E 02	-3.264E 03	-1.494E 03	-1.770E 03	3.234E 03	2.758E 01	1.436E-02	1.526E 01	7.939E-03
5.806E 01	5.659E 00	5.659E 00	-1.584E 02	-3.269E 03	-1.496E 03	-1.774E 03	3.244E 03	1.460E 01	7.596E-03	1.460E 01	7.596E-03
5.834E 01	4.762E 00	4.762E 00	-1.516E 02	-3.288E 03	-1.504E 03	-1.785E 03	3.280E 03	1.229E 01	6.393E-03	1.229E 01	6.393E-03
5.857E 01	4.397E 00	4.397E 00	-1.472E 02	-3.303E 03	-1.510E 03	-1.793E 03	3.309E 03	1.134E 01	5.902E-03	1.134E 01	5.902E-03
5.929E 01	3.225E 00	3.225E 00	-1.368E 02	-3.345E 03	-1.529E 03	-1.817E 03	3.402E 03	8.321E 00	4.329E-03	8.321E 00	4.329E-03
6.031E 01	1.009E 01	1.009E 01	-1.214E 02	-3.407E 03	-1.553E 03	-1.854E 03	3.532E 03	2.603E 01	1.354E-02	2.603E 01	1.354E-02
6.232E 01	9.425E 00	9.425E 00	-1.192E 02	-3.559E 03	-1.594E 03	-1.944E 03	3.790E 03	2.432E 01	1.265E-02	2.432E 01	1.265E-02

XABS	P-IB	P-OB	PDA	QQX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PIO
6.374E 01	1.338E 01	1.338E 01	-1.192E 02	-3.657E 03	-1.625E 03	-2.012E 03	3.972E 03	3.453E 01	1.796E-02	3.453E 01	1.796E-02
6.620E 01	1.530E 01	1.530E 01	-1.192E 02	-3.842E 03	-1.694E 03	-2.148E 03	4.289E 03	3.947E 01	2.053E-02	3.947E 01	2.053E-02
6.658E 01	1.474E 01	1.559E 01	-1.192E 02	-3.876E 03	-1.707E 03	-2.171E 03	4.337E 03	3.803E 01	1.978E-02	4.022E 01	2.092E-02
6.662E 01	1.474E 01	1.562E 01	-1.192E 02	-3.881E 03	-1.708E 03	-2.173E 03	4.342E 03	3.803E 01	1.978E-02	4.030E 01	2.097E-02
6.682E 01	1.402E 01	1.577E 01	-1.192E 02	-3.900E 03	-1.715E 03	-2.185E 03	4.368E 03	3.619E 01	1.883E-02	4.070E 01	2.117E-02
6.848E 01	8.110E 00	6.500E 00	4.480E 00	-4.030E 03	-1.761E 03	-2.270E 03	4.583E 03	2.093E 01	1.089E-02	1.677E 01	8.725E-03
6.915E 01	5.953E 00	6.877E 00	1.434E 02	-4.073E 03	-1.775E 03	-2.298E 03	4.665E 03	1.536E 01	7.991E-03	1.775E 01	9.232E-03
6.992E 01	5.475E 00	5.531E 00	2.912E 02	-4.119E 03	-1.789E 03	-2.330E 03	4.760E 03	8.966E 00	4.664E-03	1.375E 01	7.156E-03
7.064E 01	2.704E 00	3.885E 00	3.891E 02	-4.162E 03	-1.799E 03	-2.363E 03	4.848E 03	6.976E 00	3.629E-03	1.002E 01	5.215E-03
7.125E 01	2.050E 00	3.162E 00	4.522E 02	-4.196E 03	-1.806E 03	-2.390E 03	4.922E 03	5.289E 00	2.752E-03	8.157E 00	4.244E-03
7.220E 01	1.844E 00	2.035E 00	5.201E 02	-4.241E 03	-1.814E 03	-2.427E 03	5.036E 03	3.726E 00	1.939E-03	5.251E 00	2.732E-03
7.263E 01	1.170E 00	1.889E 00	5.428E 02	-4.258E 03	-1.817E 03	-2.441E 03	5.088E 03	3.019E 00	1.570E-03	4.874E 00	2.536E-03
7.416E 01	8.103E-01	1.370E 00	6.035E 02	-4.304E 03	-1.826E 03	-2.478E 03	5.273E 03	2.091E 00	1.088E-03	3.535E 00	1.839E-03
7.431E 01	7.750E-01	1.212E 00	6.079E 02	-4.307E 03	-1.827E 03	-2.481E 03	5.290E 03	2.000E 00	1.040E-03	3.126E 00	1.626E-03
7.506E 01	7.353E-01	4.200E-01	6.349E 02	-4.327E 03	-1.831E 03	-2.497E 03	5.374E 03	1.897E 00	9.870E-04	1.084E 00	5.638E-04
7.506E 01	7.351E-01	4.158E-01	6.357E 02	-4.328E 03	-1.831E 03	-2.497E 03	5.375E 03	1.897E 00	9.867E-04	1.073E 00	5.581E-04
7.639E 01	6.650E-01	0.000	6.505E 02	-4.367E 03	-1.837E 03	-2.530E 03	5.426E 03	1.716E 00	8.926E-04	0.000	0.000
7.924E 01	1.505E 00	0.000	6.939E 02	-4.378E 03	-1.848E 03	-2.530E 03	5.525E 03	3.883E 00	2.020E-03	0.000	0.000
8.314E 01	1.125E 00	0.000	7.501E 02	-4.390E 03	-1.861E 03	-2.530E 03	5.630E 03	2.903E 00	1.510E-03	0.000	0.000
8.595E 01	8.650E-01	0.000	7.722E 02	-4.401E 03	-1.872E 03	-2.530E 03	5.684E 03	2.232E 00	1.161E-03	0.000	0.000
8.881E 01	1.185E 00	0.000	7.969E 02	-4.420E 03	-1.891E 03	-2.530E 03	5.707E 03	3.057E 00	1.591E-03	0.000	0.000
8.882E 01	1.186E 00	0.000	7.969E 02	-4.420E 03	-1.891E 03	-2.530E 03	5.707E 03	3.059E 00	1.592E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.218E 02	1.218E 02	2.313E-03	5.278E-02
4.041E 01	2.128E-01	1.220E 02	2.533E-03	6.042E-02
4.085E 01	9.359E 00	1.314E 02	2.610E-03	7.720E-02
4.134E 01	1.052E 01	1.419E 02	2.809E-03	6.332E-02
4.150E 01	3.517E 00	1.454E 02	2.856E-03	6.486E-02
4.184E 01	7.308E 00	1.527E 02	2.942E-03	6.312E-02
4.246E 01	1.247E 01	1.652E 02	3.081E-03	5.965E-02
4.283E 01	7.054E 00	1.722E 02	3.252E-03	5.337E-02
4.284E 01	1.832E-01	1.724E 02	2.980E-03	5.865E-02
4.290E 01	1.147E 00	1.736E 02	2.942E-03	5.864E-02
4.431E 01	2.337E 01	1.969E 02	3.065E-03	5.013E-02
4.480E 01	7.601E 00	2.045E 02	3.072E-03	4.877E-02
4.562E 01	1.207E 01	2.166E 02	3.084E-03	5.437E-02
4.625E 01	9.046E 00	2.257E 02	3.456E-03	4.986E-02
4.626E 01	1.416E-01	2.258E 02	3.167E-03	5.557E-02
4.634E 01	1.010E 00	2.268E 02	3.115E-03	5.666E-02
4.731E 01	1.210E 01	2.389E 02	3.089E-03	5.666E-02
4.811E 01	8.986E 00	2.479E 02	3.037E-03	5.451E-02
4.886E 01	7.785E 00	2.557E 02	2.955E-03	5.183E-02
5.030E 01	1.466E 01	2.703E 02	3.151E-03	3.897E-02
5.031E 01	9.876E-02	2.704E 02	2.804E-03	4.393E-02
5.084E 01	4.894E 00	2.753E 02	2.735E-03	3.915E-02
5.229E 01	1.186E 01	2.872E 02	2.633E-03	3.735E-02
5.435E 01	1.509E 01	3.023E 02	2.712E-03	3.287E-02
5.485E 01	3.455E 00	3.057E 02	2.896E-03	2.844E-02
5.560E 01	5.230E 00	3.110E 02	2.853E-03	2.717E-02
5.576E 01	1.087E 00	3.121E 02	2.883E-03	2.695E-02
5.636E 01	1.944E 00	3.140E 02	2.763E-03	2.128E-02
5.779E 01	4.630E 00	3.186E 02	2.791E-03	1.704E-02
5.784E 01	2.917E-01	3.189E 02	2.748E-03	2.047E-02
5.798E 01	7.258E-01	3.197E 02	2.912E-03	1.905E-02
5.806E 01	4.810E-01	3.201E 02	3.273E-03	1.341E-02
5.834E 01	1.678E 00	3.218E 02	2.542E-03	1.467E-02
5.857E 01	1.174E 00	3.230E 02	2.402E-03	1.437E-02
5.929E 01	3.645E 00	3.266E 02	2.302E-03	1.172E-02
6.031E 01	4.665E 00	3.313E 02	2.403E-03	2.506E-02
6.232E 01	9.712E 00	3.410E 02	3.002E-03	1.966E-02
6.374E 01	7.503E 00	3.485E 02	3.010E-03	2.371E-02
6.620E 01	1.179E 01	3.603E 02	3.215E-03	2.273E-02
6.658E 01	1.636E 00	3.619E 02	3.325E-03	2.119E-02
6.662E 01	1.676E-01	3.621E 02	3.371E-03	2.140E-02
6.682E 01	8.480E-01	3.630E 02	3.364E-03	2.133E-02
6.848E 01	7.473E 00	3.704E 02	3.184E-03	1.591E-02
6.915E 01	2.889E 00	3.733E 02	3.158E-03	1.477E-02
6.992E 01	3.106E 00	3.764E 02	3.089E-03	1.170E-02
7.064E 01	2.545E 00	3.790E 02	3.038E-03	9.652E-03
7.125E 01	1.904E 00	3.809E 02	3.001E-03	8.212E-03
7.220E 01	2.509E 00	3.834E 02	2.937E-03	6.155E-03
7.263E 01	9.843E-01	3.844E 02	2.916E-03	5.602E-03
7.416E 01	3.052E 00	3.874E 02	2.859E-03	4.351E-03
7.431E 01	2.501E-01	3.877E 02	2.843E-03	4.057E-03
7.506E 01	1.015E 00	3.887E 02	2.752E-03	2.681E-03
7.506E 01	1.616E-03	3.887E 02	2.751E-03	2.673E-03
7.639E 01	5.412E-01	3.892E 02	2.768E-03	2.979E-03
7.924E 01	1.407E 00	3.906E 02	2.883E-03	5.471E-03
8.314E 01	1.722E 00	3.924E 02	2.817E-03	4.378E-03

READING = 0061 BLOCK = 118 TIME = 205.862 MACH 6.0 PT = 744.999 TT = 2991.1

X	UDRAG	CDRAG	CF	MC
8.595E 01	7.533E-01	3.931E 02	2.763E-03	5.575E-03
8.881E 01	3.170E-01	3.934E 02	2.800E-03	4.508E-03
8.882E 01	0.000	3.934E 02	2.800E-03	4.509E-03

RAMJET PERFORMANCE

08

ENGINE PERFORMANCE

CALCULATED THRUST	403.	(LBF)
MEASURED THRUST	459.	(LBF)
CALCULATED SPECIFIC IMPULSE	911.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1036.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.1618	
MEASURED THRUST COEFFICIENT	0.1840	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	4643.	(LBF)
NET THRUST	561.	(LBF)
SPECIFIC IMPULSE	1312.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.2332	

MOMENTUM AND FORCES

INLET FRICTION DRAG	121.8	(LBF)
INLET MOMENTUM CHANGE	-722.3	(LBF)
COMBUSTOR FRICTION DRAG	240.1	(LBF)
COMBUSTOR STRUT DRAG	-45.00	(LBF)
COMBUSTOR MOMENTUM CHANGE	241.	(LBF)
NOZZLE FRICTION DRAG	31.49	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	885.	(LBF)
NOZZLE PRESSURE INTEGRAL	916.	(LBF)
EXTERNAL FRICTION DRAG	63.34	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1110.	(LBF)
TOTAL EXTERNAL DRAG	-1173.	(LBF)
TOTAL STRUT DRAG	-45.00	(LBF)
CAVITY FORCE	-1014.	(LBF)
CALCULATED LOAD CELL FORCE	-1783.	(LBF)
MEASURED LOAD CELL FORCE	-1728.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, 0.0, -152.3, -115.7,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.8406	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.725	(IN)
NOZZLE SHROUD TRAILING EDGE	75.065	(IN)
NOZZLE PLUG TRAILING EDGE	88.817	(IN)
STRUT LEADING EDGE	57.981	(IN)
STRUT TRAILING EDGE	66.581	(IN)
COMBUSTOR EXIT	66.581	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.7801	
ADDITIVE DRAG COEFFICIENT	0.0293	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1844	
DELTA PT2	0.1374	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4156	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1871	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9119	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9155	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9308	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8865	
ENTHALPY AT P0 - SUPERSONIC	-8.20	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	22.71	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0209	
EQUIVALENCE RATIO	0.637	
COMBUSTOR EFFICIENCY	0.612	
TOTAL PRESSURE RATIO	0.0897	
COMBUSTOR EFFECTIVENESS	0.5782	
INJECTOR DISCHARGE COEFFICIENTS	0.5460, 0.4826, 0.7729, 0.7145	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9694	
NOZZLE COEFFICIENT - CT	0.8978	
PROCESS EFFICIENCY	0.9549	
KINETIC ENERGY EFFICIENCY	0.9329	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.826	B
1C	44.300	
2A	50.301	D
2C	46.250	E
3A	55.591	
3B	57.776	
4	46.326	

Reading 61

t = 212.16 sec.

READING = 0061 BLOCK = 125 TIME = 212.102 MACH 6.0 PT = 745.499 TT = 2991.1 PAGE 1

RAMJET PERFORMANCE

3 4-15

S U M M A R Y R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	745.499	2991	666.9(792)	1.2931	28.955	2577											
0.000	0.388	405	=31.6(97)	1.3989	28.953	987	5.992	5912	1.827	0.10600	21.194	0.7806	3972	9.739	187.4		
SPIKE TIP NS		2	0 6														
0.600	18.700	2991	666.9(792)	1.2930	28.954	2577											
0.600	17.040	2928	648.0(774)	1.2950	28.954	2552	0.381	972	2.079	0.10600	21.194	0.7806	4047	1.602	191.0		
WIND TUNNEL		3	0 0														
0.000	745.499	2991	666.9(792)	1.2931	28.955	2577											
0.000	0.401	409	=30.7(98)	1.3989	28.954	991	5.960	5908	1.827	0.10847	21.686	0.7806	4062	9.959	187.3		
SPIKE TIP NS		4	0 0														
0.600	18.700	2991	666.9(792)	1.2930	28.954	2577											
0.600	16.951	2925	647.0(773)	1.2951	28.954	2550	0.392	999	2.079	0.10847	21.686	0.7806	4062	1.684	187.3		
INLET THROAT		5	0 4														
40.400	308.326	2906	641.3(767)	1.2958	28.954	2543											
40.400	18.901	1471	234.6(363)	1.3496	28.954	1847	2.443	4511	1.878	1.08587	21.194	0.0762	3341	76.131	157.6		
INLET UPNRSK		6	0 3														
40.400	308.326	2906	641.3(767)	1.2958	28.954	2543											
40.400	16.211	1414	219.4(348)	1.3529	28.954	1812	2.535	4595	1.878	0.98716	21.194	0.0838	3375	70.491	159.2		
INLET DNNRSK		7	0 4														
40.400	139.377	2906	641.3(767)	1.2958	28.954	2543											
40.400	119.157	2804	610.6(737)	1.2990	28.954	2501	0.496	1240	1.935	0.98716	21.194	0.0838	3375	19.018	159.2		
COMBUSTOR	0	8	1 2														
40.410	233.551	3048	642.0(830)	1.2896	28.290	2628											
40.410	24.420	1781	266.2(498)	1.3334	28.290	2043	2.123	4336	1.957	1.08832	21.245	0.0762	3340	73.343	157.2	0.07	0.49
COMBUSTOR	0	9	2 202														
40.849	185.611	3248	640.1(888)	1.2801	28.532	2692											
40.849	37.046	2245	334.5(588)	1.3137	28.534	2267	1.725	3910	1.984	1.09200	21.245	0.0760	3303	66.360	155.5	0.07	1.00
COMBUSTOR	0	10	3 21														
41.339	160.738	3241	637.8(886)	1.2802	28.532	2689											
41.339	30.801	2218	326.6(580)	1.3146	28.533	2254	1.751	3946	1.993	1.08016	21.245	0.0768	3211	66.239	151.2	0.07	1.00
COMBUSTOR	0	11	4 21														
41.500	149.421	3239	637.0(885)	1.2803	28.532	2688											
41.500	33.114	2294	348.9(603)	1.3119	28.533	2290	1.658	3797	1.998	1.07319	21.245	0.0773	3163	63.324	148.9	0.07	1.00
COMBUSTOR	0	12	5 21														
41.839	127.999	3233	635.3(883)	1.2804	28.532	2686											
41.839	33.133	2376	372.9(626)	1.3091	28.533	2328	1.556	3623	2.008	1.05418	21.245	0.0787	3060	59.360	144.0	0.07	1.00
COMBUSTOR	0	13	6 21														
42.460	100.168	3221	631.5(879)	1.2807	28.532	2681											
42.460	33.487	2513	413.6(667)	1.3045	28.533	2390	1.382	3302	2.024	1.00792	21.245	0.0823	2886	51.726	135.9	0.07	1.00
COMBUSTOR	0	14	7 21														
42.824	96.138	2848	632.9(795)	1.2988	27.249	2598											
42.824	30.583	2171	424.3(589)	1.3214	27.249	2288	1.412	3230	2.056	0.99076	21.300	0.0839	2796	49.739	131.3	0.15	0.11
COMBUSTOR	0	15	8 21														
42.834	99.018	2769	632.8(792)	1.3025	27.164	2569											
42.834	30.503	2090	424.6(566)	1.3252	27.164	2251	1.433	3227	2.047	0.98873	21.300	0.0841	2794	49.686	131.2	0.15	0.02
COMBUSTOR	0	16	9 21														
42.899	97.289	2756	632.3(768)	1.3031	27.152	2564											
42.899	29.984	2079	425.2(563)	1.3258	27.151	2247	1.435	3219	2.047	0.98619	21.300	0.0843	2779	49.336	130.5	0.15	0.00
COMBUSTOR	0	17	10 21														
44.310	73.663	2714	619.8(795)	1.3045	27.150	2546											
44.310	27.569	2146	445.6(583)	1.3234	27.150	2280	1.294	2952	2.062	0.91452	21.300	0.0909	2596	41.952	121.9	0.15	0.00
COMBUSTOR	0	18	11 21														
44.800	71.652	2698	614.8(750)	1.3050	27.149	2539											
44.800	26.730	2131	441.2(578)	1.3239	27.149	2273	1.297	2947	2.062	0.90124	21.300	0.0923	2583	41.278	121.3	0.15	0.00

READING = 0061 BLOCK = 125 TIME = 212.162 MACH 6.0 PT = 745.499 TT = 2991.1

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
45.619	73.113	2821	606.7(786)	1.2989	27.511	2583											
45.619	35.166	2376	466.5(650)	1.3137	27.511	2384	1.103	2629	2.071	0.89147	21.300	0.0933	2581	36.420	121.2	0.15	0.18
COMBUSTOR	0	20	13 21														
46.250	68.590	2650	621.1(815)	1.3091	24.413	2658											
46.250	37.869	2298	501.7(696)	1.3209	24.413	2486	0.983	2445	2.243	0.87575	21.503	0.0959	2564	33.273	119.2	0.44	0.06
COMBUSTOR	0	21	14 21														
46.260	70.364	2540	621.0(779)	1.3141	24.309	2613											
46.260	37.912	2186	501.8(661)	1.3261	24.309	2435	1.003	2443	2.229	0.87525	21.503	0.0959	2564	33.226	119.2	0.44	0.01
COMBUSTOR	0	22	15 21														
46.334	70.717	2521	620.2(773)	1.3150	24.294	2605											
46.334	38.227	2171	502.4(656)	1.3268	24.294	2428	1.000	2428	2.226	0.87157	21.503	0.0963	2566	32.891	119.3	0.44	0.00
COMBUSTOR	0	23	16 21														
47.310	70.603	2486	609.3(761)	1.3161	24.292	2588											
47.310	42.408	2197	511.8(665)	1.3260	24.291	2442	0.905	2210	2.221	0.81175	21.503	0.1034	2600	27.877	120.9	0.44	0.00
COMBUSTOR	0	24	17 21														
48.110	68.728	2459	600.1(752)	1.3170	24.291	2575											
48.110	40.658	2164	501.0(654)	1.3271	24.291	2424	0.919	2228	2.220	0.74546	21.503	0.1126	2662	25.812	123.8	0.44	0.00
COMBUSTOR	0	25	18 21														
48.859	67.766	2439	591.7(745)	1.3177	24.296	2564											
48.859	36.600	2098	477.5(632)	1.3294	24.296	2389	1.000	2389	2.218	0.66476	21.503	0.1263	2781	24.685	129.3	0.44	0.00
COMBUSTOR	0	26	19 10														
50.299	60.836	2369	590.3(796)	1.3225	21.959	2663											
50.299	24.806	1895	417.8(624)	1.3396	21.959	2398	1.225	2938	2.401	0.54641	21.720	0.1552	2969	24.947	136.7	0.76	0.03
COMBUSTOR	0	27	20 2														
50.309	60.811	2370	590.2(797)	1.3225	21.960	2664											
50.309	24.784	1895	417.1(624)	1.3396	21.960	2397	1.228	2943	2.401	0.54570	21.720	0.1554	2971	24.954	136.8	0.76	0.03
COMBUSTOR	0	28	21 3														
50.839	60.243	2382	585.1(801)	1.3217	21.982	2669											
50.839	20.383	1818	380.4(597)	1.3424	21.982	2350	1.362	3201	2.403	0.51035	21.720	0.1662	3028	25.384	139.4	0.76	0.04
COMBUSTOR	0	29	22 5														
52.249	51.627	2743	573.4(928)	1.3047	22.317	2823											
52.249	21.725	2231	382.3(739)	1.3224	22.317	2563	1.206	3092	2.457	0.43496	21.720	0.1950	3172	20.902	146.1	0.76	0.15
COMBUSTOR	0	30	23 5														
54.349	46.045	3062	559.2(1043)	1.2892	22.638	2944											
54.349	17.325	2444	323.8(811)	1.3105	22.639	2652	1.294	3432	2.495	0.35650	21.720	0.2379	3373	19.014	155.3	0.76	0.26
COMBUSTOR	0	31	24 3														
54.849	45.530	3086	556.1(1051)	1.2879	22.668	2953											
54.849	15.796	2418	301.7(801)	1.3110	22.669	2637	1.353	3568	2.498	0.34193	21.720	0.2480	3412	18.959	157.1	0.76	0.27
COMBUSTOR	0	32	25 4														
55.599	44.088	3163	551.7(1079)	1.2840	22.750	2979											
55.599	14.674	2459	282.7(815)	1.3085	22.752	2652	1.384	3669	2.506	0.32232	21.720	0.2631	3466	18.378	159.6	0.76	0.29
COMBUSTOR	0	33	26 3														
55.760	43.819	3177	550.8(1084)	1.2833	22.765	2984											
55.760	14.433	2465	278.5(817)	1.3081	22.767	2654	1.391	3691	2.507	0.31842	21.720	0.2665	3477	18.266	160.1	0.76	0.30
COMBUSTOR	0	34	27 4														
56.359	37.897	3351	547.7(1147)	1.2741	22.939	3042											
56.359	10.440	2508	222.2(829)	1.3042	22.943	2663	1.516	4036	2.532	0.24935	21.720	0.3401	3634	15.639	167.3	0.76	0.36
COMBUSTOR	0	35	28 4														
57.784	42.788	3140	541.5(1070)	1.2848	22.753	2969											
57.784	7.276	2077	142.2(676)	1.3224	22.755	2450	1.824	4470	2.506	0.23055	21.720	0.3678	3703	16.015	170.5	0.76	0.30
COMBUSTOR	0	36	29 4														
57.839	36.684	3425	541.3(1174)	1.2698	23.026	3064											
57.839	9.292	2522	190.9(833)	1.3025	23.032	2663	1.572	4187	2.539	0.22991	21.720	0.3689	3705	14.960	170.6	0.76	0.38
COMBUSTOR	0	37	30 3														
57.979	36.960	3400	540.6(1165)	1.2711	23.004	3056											
57.979	8.985	2478	183.9(817)	1.3044	23.009	2643	1.599	4226	2.537	0.22817	21.720	0.3717	3708	14.985	170.7	0.76	0.38

READING = 0061 BLOCK = 125 TIME = 212.162 MACH 6.0 PT = 745.499 TT = 2991.1 PAGE

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	51 10														
58.059	49.769	2960	540.5(1005)	1.2935	22.589	2903											
58.059	6.068	1788	108.2(576)	1.3361	22.590	2293	2.028	4651	2.477	0.23077	21.720	0.3675	3711	16.679	170.8	0.76	0.24
COMBUSTOR	0	39	32 5														
58.339	61.829	2765	539.5(935)	1.3026	22.415	2826											
58.339	4.837	1474	73.2(471)	1.3530	22.416	2103	2.297	4630	2.440	0.23001	21.720	0.3687	3718	17.266	171.2	0.76	0.18
COMBUSTOR	0	40	53 3														
58.565	61.408	2777	538.8(939)	1.3020	22.428	2831											
58.565	4.864	1486	72.1(475)	1.3522	22.429	2111	2.289	4832	2.442	0.22953	21.720	0.3695	3723	17.237	171.4	0.76	0.19
COMBUSTOR	0	41	34 4														
59.289	58.927	2824	536.5(956)	1.2998	22.475	2849											
59.289	4.950	1539	70.4(492)	1.3490	22.475	2143	2.254	4830	2.450	0.22597	21.720	0.3753	3736	16.961	172.0	0.76	0.20
COMBUSTOR	0	42	35 6														
60.309	33.399	3770	533.2(1301)	1.2487	23.393	3163											
60.309	11.287	3006	221.9(1006)	1.2801	23.412	2859	1.381	3947	2.567	0.22453	21.720	0.3777	3756	13.771	172.9	0.76	0.50
COMBUSTOR	0	43	36 4														
62.319	37.590	3545	526.0(1217)	1.2626	23.182	3098											
62.319	9.600	2629	166.7(870)	1.2967	23.191	2704	1.568	4240	2.543	0.23235	21.720	0.3650	3760	15.310	173.1	0.76	0.43
COMBUSTOR	0	44	37 5														
63.739	35.974	3962	520.7(1372)	1.2354	23.627	3209											
63.739	14.231	3334	254.2(1127)	1.2638	23.657	2976	1.227	3651	2.574	0.23864	21.720	0.3553	3760	13.542	173.1	0.76	0.58
COMBUSTOR	0	45	38 4														
66.203	31.451	4105	509.5(1424)	1.2240	23.809	3239											
66.203	16.726	3645	305.5(1243)	1.2466	23.847	3078	1.038	3195	2.585	0.22621	21.720	0.3749	3763	11.231	173.2	0.76	0.64
COMBUSTOR	0	46	39 3														
66.579	29.226	4111	507.6(1426)	1.2228	23.820	3239											
66.579	16.353	3689	318.9(1260)	1.2439	23.859	3092	0.994	3073	2.591	0.21030	21.720	0.4032	3763	10.041	173.3	0.76	0.64
COMBUSTOR REGEN		47	40 21														
66.579	29.226	4374	640.8(1531)	1.2055	23.764	3321											
66.579	10.474	3637	297.9(1240)	1.2446	23.859	3071	1.349	4142	2.622	0.21030	21.720	0.4032	3878	13.537	178.5	0.76	0.64
NOZZLE AE		48	41 4														
88.815	29.226	4111	507.6(1398)	1.2228	23.820	3239											
88.815	0.819	1906	-361.4(569)	1.3159	23.882	2285	2.886	6594	2.591	0.04378	21.720	1.9372	4858	4.486	223.7	0.76	0.64
NOZZLE PO		49	42 4														
88.815	29.226	4111	507.6(1398)	1.2228	23.820	3239											
88.815	0.388	1588	-469.8(490)	1.3312	23.882	2098	3.334	6993	2.591	0.02640	21.720	3.2128	5040	2.869	232.1	0.76	0.64
NOZZLE AE REGEN		50	43 4														
88.815	29.226	4374	640.8(1531)	1.2055	23.764	3321											
88.815	0.883	2123	-285.6(674)	1.3068	23.882	2403	2.833	6808	2.622	0.04377	21.720	1.9373	5034	4.632	231.8	0.76	0.64
NOZZLE PO REGEN		51	44 4														
88.815	29.226	4374	640.8(1531)	1.2055	23.764	3321											
88.815	0.388	1743	-417.5(543)	1.3234	23.882	2191	3.321	7277	2.622	0.02503	21.720	3.3884	5249	2.830	241.7	0.76	0.64
FICTIVE COMBUSTR		71	64 0														
66.579	508.326	5074	507.6(1789)	1.1834	24.915	3462											
66.579	0.588	1274	-1029.9(375)	1.3375	25.182	1834	4.783	8771	2.422	0.04352	21.720	1.9484	6115	5.934	281.5	0.76	1.00
FICTIVE NOZZLE		72	65 0														
88.815	22.058	4044	478.3(1400)	1.2244	23.825	3215											
88.815	0.930	2058	-306.2(652)	1.3094	23.882	2369	2.648	6273	2.607	0.04378	21.720	1.9371	4696	4.268	216.2	0.76	0.64

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.050E 00	0.000	-4.553E-01	0.000	0.000	0.000	2.470E-02	2.707E 00	1.408E-03	0.000	0.000
1.836E 01	1.050E 00	0.000	-3.498E 01	0.000	0.000	0.000	1.634E 02	2.707E 00	1.408E-03	0.000	0.000
3.070E 01	2.240E 00	0.000	-1.683E 02	0.000	0.000	0.000	5.053E 02	5.776E 00	3.005E-03	0.000	0.000
3.508E 01	3.930E 00	0.000	-3.683E 02	0.000	0.000	0.000	6.804E 02	1.013E 01	5.272E-03	0.000	0.000
3.555E 01	4.040E 00	0.000	-4.046E 02	0.000	0.000	0.000	7.013E 02	1.042E 01	5.419E-03	0.000	0.000
3.606E 01	3.960E 00	0.000	-4.452E 02	-3.372E 02	-3.372E 02	0.000	7.246E 02	1.021E 01	5.312E-03	0.000	0.000
3.648E 01	4.244E 00	0.000	-4.803E 02	-3.454E 02	-3.454E 02	0.000	7.443E 02	1.094E 01	5.693E-03	0.000	0.000
3.672E 01	4.238E 00	5.680E 00	-5.587E 02	-3.501E 02	-3.501E 02	0.000	7.555E 02	1.093E 01	5.685E-03	1.465E 01	7.619E-03
3.672E 01	4.238E 00	5.717E 00	-5.588E 02	-3.502E 02	-3.502E 02	0.000	7.558E 02	1.093E 01	5.684E-03	1.474E 01	7.668E-03
3.701E 01	4.230E 00	7.457E 00	-5.622E 02	-3.561E 02	-3.561E 02	0.000	7.856E 02	1.091E 01	5.674E-03	1.923E 01	1.000E-02
3.739E 01	4.089E 00	9.750E 00	-5.597E 02	-3.641E 02	-3.641E 02	0.000	8.254E 02	1.054E 01	5.485E-03	2.514E 01	1.308E-02
3.803E 01	3.850E 00	1.250E 01	-5.399E 02	-3.784E 02	-3.784E 02	0.000	8.943E 02	9.927E 00	5.164E-03	3.222E 01	1.676E-02
3.875E 01	1.145E 01	1.558E 01	-5.498E 02	-4.178E 02	-4.005E 02	-1.723E 01	9.746E 02	2.953E 01	1.536E-02	4.017E 01	2.090E-02
3.885E 01	1.250E 01	1.600E 01	-5.540E 02	-4.233E 02	-4.044E 02	-1.886E 01	9.856E 02	3.222E 01	1.676E-02	4.126E 01	2.146E-02
3.901E 01	1.420E 01	1.681E 01	-5.611E 02	-4.328E 02	-4.113E 02	-2.152E 01	1.004E 03	3.661E 01	1.905E-02	4.336E 01	2.255E-02
3.950E 01	1.809E 01	1.927E 01	-5.839E 02	-4.658E 02	-4.363E 02	-2.952E 01	1.060E 03	4.664E 01	2.426E-02	4.969E 01	2.585E-02
3.987E 01	1.709E 01	2.112E 01	-5.886E 02	-4.948E 02	-4.593E 02	-3.548E 01	1.105E 03	4.406E 01	2.292E-02	5.447E 01	2.834E-02
4.000E 01	1.673E 01	2.020E 01	-5.883E 02	-5.061E 02	-4.685E 02	-3.758E 01	1.118E 03	4.314E 01	2.244E-02	5.207E 01	2.709E-02
4.034E 01	2.693E 01	1.780E 01	-5.992E 02	-5.365E 02	-4.935E 02	-4.298E 01	1.157E 03	6.944E 01	3.613E-02	4.590E 01	2.388E-02
4.040E 01	2.878E 01	1.948E 01	-6.038E 02	-5.422E 02	-4.982E 02	-4.395E 01	1.164E 03	7.421E 01	3.860E-02	5.024E 01	2.614E-02
4.041E 01	2.908E 01	1.976E 01	-6.043E 02	-5.431E 02	-4.990E 02	-4.411E 01	1.166E 03	7.498E 01	3.901E-02	5.095E 01	2.650E-02
4.085E 01	4.229E 01	3.180E 01	-6.323E 02	-5.847E 02	-5.337E 02	-5.101E 01	1.217E 03	1.090E 02	5.673E-02	8.199E 01	4.266E-02
4.134E 01	5.705E 01	4.550E 00	-7.133E 02	-6.338E 02	-5.753E 02	-5.853E 01	1.275E 03	1.471E 02	7.653E-02	1.173E 01	6.103E-03
4.150E 01	6.191E 01	4.316E 00	-7.585E 02	-6.506E 02	-5.897E 02	-6.095E 01	1.294E 03	1.596E 02	8.305E-02	1.113E 01	5.789E-03
4.184E 01	6.244E 01	3.825E 00	-8.537E 02	-6.872E 02	-6.212E 02	-6.599E 01	1.334E 03	1.610E 02	8.376E-02	9.863E 00	5.131E-03
4.246E 01	6.341E 01	3.561E 00	-1.015E 03	-7.667E 02	-6.801E 02	-8.665E 01	1.408E 03	1.635E 02	8.506E-02	9.182E 00	4.777E-03
4.282E 01	5.776E 01	3.407E 00	-1.098E 03	-8.222E 02	-7.133E 02	-1.089E 02	1.451E 03	1.489E 02	7.748E-02	8.784E 00	4.570E-03
4.283E 01	5.760E 01	3.403E 00	-1.101E 03	-8.238E 02	-7.142E 02	-1.096E 02	1.452E 03	1.485E 02	7.727E-02	8.773E 00	4.564E-03
4.290E 01	5.659E 01	3.375E 00	-1.114E 03	-8.343E 02	-7.200E 02	-1.143E 02	1.460E 03	1.459E 02	7.591E-02	8.702E 00	4.527E-03
4.431E 01	3.465E 01	2.048E 01	-1.274E 03	-1.101E 03	-8.342E 02	-2.667E 02	1.630E 03	8.935E 01	4.648E-02	5.282E 01	2.748E-02
4.480E 01	2.704E 01	2.642E 01	-1.279E 03	-1.206E 03	-8.689E 02	-3.369E 02	1.690E 03	6.971E 01	3.627E-02	6.813E 01	3.544E-02
4.562E 01	3.398E 01	3.635E 01	-1.270E 03	-1.380E 03	-9.238E 02	-4.563E 02	1.789E 03	8.763E 01	4.559E-02	9.372E 01	4.876E-02
4.625E 01	3.934E 01	3.640E 01	-1.246E 03	-1.519E 03	-9.650E 02	-5.539E 02	1.867E 03	1.014E 02	5.277E-02	9.385E 01	4.882E-02
4.626E 01	3.943E 01	3.640E 01	-1.245E 03	-1.521E 03	-9.656E 02	-5.559E 02	1.868E 03	1.017E 02	5.289E-02	9.385E 01	4.882E-02
4.633E 01	4.005E 01	3.640E 01	-1.242E 03	-1.538E 03	-9.703E 02	-5.676E 02	1.877E 03	1.033E 02	5.373E-02	9.386E 01	4.883E-02
4.731E 01	4.834E 01	3.648E 01	-1.197E 03	-1.771E 03	-1.032E 03	-7.393E 02	1.997E 03	1.246E 02	6.484E-02	9.406E 01	4.893E-02
4.811E 01	4.477E 01	3.654E 01	-1.127E 03	-1.969E 03	-1.080E 03	-8.885E 02	2.097E 03	1.154E 02	6.006E-02	9.422E 01	4.902E-02
4.886E 01	3.660E 01	3.660E 01	-1.001E 03	-2.153E 03	-1.124E 03	-1.029E 03	2.190E 03	9.437E 01	4.909E-02	9.437E 01	4.909E-02
5.030F 01	2.481E 01	2.481E 01	-7.727E 02	-2.485E 03	-1.205E 03	-1.278E 03	2.370E 03	6.396E 01	3.327E-02	6.396E 01	3.327E-02
5.031E 01	2.472E 01	2.472E 01	-7.714E 02	-2.485E 03	-1.205E 03	-1.280E 03	2.371E 03	6.375E 01	3.316E-02	6.375E 01	3.316E-02
5.084E 01	2.038E 01	2.038E 01	-7.091E 02	-2.595E 03	-1.233E 03	-1.362E 03	2.437E 03	5.256E 01	2.734E-02	5.256E 01	2.734E-02
5.225E 01	2.172E 01	2.172E 01	-5.534E 02	-2.850E 03	-1.309E 03	-1.594E 03	2.615E 03	5.602E 01	2.914E-02	5.602E 01	2.914E-02
5.435E 01	1.732E 01	1.732E 01	-3.385E 02	-3.158E 03	-1.403E 03	-1.754E 03	2.881E 03	4.467E 01	2.324E-02	4.467E 01	2.324E-02
5.485E 01	1.580E 01	1.580E 01	-2.954E 02	-3.225E 03	-1.425E 03	-1.800E 03	2.945E 03	4.073E 01	2.119E-02	4.073E 01	2.119E-02
5.560E 01	1.467E 01	1.467E 01	-2.365E 02	-3.321E 03	-1.456E 03	-1.865E 03	3.041E 03	3.784E 01	1.968E-02	3.784E 01	1.968E-02
5.576E 01	1.443E 01	1.443E 01	-2.244E 02	-3.340E 03	-1.463E 03	-1.877E 03	3.061E 03	3.721E 01	1.936E-02	3.721E 01	1.936E-02
5.636E 01	7.342E 00	1.354E 01	-6.519E 01	-3.408E 03	-1.486E 03	-1.922E 03	3.102E 03	1.893E 01	9.848E-03	3.491E 01	1.816E-02
5.778E 01	7.276E 00	7.276E 00	8.872E 00	-3.542E 03	-1.534E 03	-2.009E 03	3.209E 03	1.876E 01	9.760E-03	1.876E 01	9.760E-03
5.784E 01	1.155E 01	7.034E 00	1.091E 01	-3.547E 03	-1.535E 03	-2.011E 03	3.216E 03	2.978E 01	1.549E-02	1.814E 01	9.436E-03
5.798E 01	1.155E 01	6.419E 00	1.529E 01	-3.558E 03	-1.540E 03	-2.018E 03	3.234E 03	2.978E 01	1.549E-02	1.655E 01	8.611E-03
5.806E 01	6.068E 00	6.068E 00	1.780E 01	-3.564E 03	-1.542E 03	-2.022E 03	3.244E 03	1.565E 01	8.139E-03	1.565E 01	8.139E-03
5.834E 01	4.837E 00	4.837E 00	2.491E 01	-3.585E 03	-1.551E 03	-2.035E 03	3.280E 03	1.247E 01	6.489E-03	1.247E 01	6.489E-03
5.856E 01	4.864E 00	4.864E 00	2.963E 01	-3.602E 03	-1.558E 03	-2.044E 03	3.309E 03	1.254E 01	6.525E-03	1.254E 01	6.525E-03
5.929E 01	4.950E 00	4.950E 00	4.294E 01	-3.650E 03	-1.578E 03	-2.072E 03	3.402E 03	1.276E 01	6.640E-03	1.276E 01	6.640E-03
6.031E 01	1.129E 01	1.129E 01	6.174E 01	-3.722E 03	-1.605E 03	-2.117E 03	3.532E 03	2.910E 01	1.514E-02	2.910E 01	1.514E-02
6.232E 01	9.600E 00	9.600E 00	6.418E 01	-3.879E 03	-1.652E 03	-2.227E 03	3.790E 03	2.475E 01	1.288E-02	2.475E 01	1.288E-02

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CA-ALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.374E 01	1.423E 01	1.423E 01	6.418E 01	-3.995E 03	-1.687E 03	-2.508E 03	3.972E 03	3.669E 01	1.909E-02	3.669E 01	1.909E-02
6.620E 01	1.673E 01	1.673E 01	6.418E 01	-4.258E 03	-1.761E 03	-2.476E 03	4.289E 03	4.313E 01	2.244E-02	4.313E 01	2.244E-02
6.658E 01	1.560E 01	1.711E 01	6.418E 01	-4.279E 03	-1.774E 03	-2.505E 03	4.337E 03	4.022E 01	2.093E-02	4.411E 01	2.295E-02
6.662E 01	1.560E 01	1.715E 01	6.418E 01	-4.284E 03	-1.776E 03	-2.508E 03	4.342E 03	4.022E 01	2.093E-02	4.421E 01	2.300E-02
6.682E 01	1.483E 01	1.735E 01	6.418E 01	-4.305E 03	-1.783E 03	-2.523E 03	4.368E 03	3.825E 01	1.990E-02	4.474E 01	2.327E-02
6.848E 01	8.470E 00	6.990E 00	1.974E 02	-4.457E 03	-1.831E 03	-2.626E 03	4.583E 03	2.184E 01	1.136E-02	1.802E 01	9.376E-03
6.915E 01	6.199E 00	7.065E 00	3.427E 02	-4.507E 03	-1.846E 03	-2.661E 03	4.665E 03	1.598E 01	8.316E-03	1.822E 01	9.477E-03
6.992E 01	3.590E 00	5.484E 00	4.955E 02	-4.562E 03	-1.860E 03	-2.702E 03	4.760E 03	9.257E 00	4.816E-03	1.414E 01	7.356E-03
7.064E 01	2.786E 00	4.005E 00	5.964E 02	-4.614E 03	-1.871E 03	-2.743E 03	4.848E 03	7.184E 00	3.737E-03	1.033E 01	5.372E-03
7.125E 01	2.105E 00	3.248E 00	6.613E 02	-4.655E 03	-1.879E 03	-2.776E 03	4.922E 03	5.428E 00	2.824E-03	8.376E 00	4.357E-03
7.220E 01	1.496E 00	2.070E 00	7.310E 02	-4.708E 03	-1.887E 03	-2.820E 03	5.036E 03	3.857E 00	2.006E-03	5.337E 00	2.777E-03
7.263E 01	1.220E 00	1.931E 00	7.544E 02	-4.727E 03	-1.890E 03	-2.837E 03	5.088E 03	3.146E 00	1.636E-03	4.978E 00	2.590E-03
7.416E 01	8.147E-01	1.435E 00	8.170E 02	-4.780E 03	-1.900E 03	-2.880E 03	5.273E 03	2.101E 00	1.093E-03	3.700E 00	1.925E-03
7.431E 01	7.750E-01	1.271E 00	8.215E 02	-4.785E 03	-1.901E 03	-2.884E 03	5.290E 03	1.998E 00	1.040E-03	3.277E 00	1.705E-03
7.506E 01	8.183E-01	4.500E-01	8.499E 02	-4.808E 03	-1.905E 03	-2.903E 03	5.374E 03	2.110E 00	1.098E-03	1.160E 00	6.036E-04
7.506E 01	8.185E-01	4.456E-01	8.508E 02	-4.808E 03	-1.905E 03	-2.903E 03	5.375E 03	2.110E 00	1.098E-03	1.149E 00	5.977E-04
7.639E 01	8.950E-01	0.000	8.689E 02	-4.854E 03	-1.912E 03	-2.942E 03	5.426E 03	2.308E 00	1.201E-03	0.000	0.000
7.924E 01	1.665E 00	0.000	9.201E 02	-4.867E 03	-1.924E 03	-2.942E 03	5.525E 03	4.293E 00	2.233E-03	0.000	0.000
8.314E 01	1.185E 00	0.000	9.810E 02	-4.861E 03	-1.938E 03	-2.942E 03	5.630E 03	3.055E 00	1.590E-03	0.000	0.000
8.595E 01	9.200E-01	0.000	1.004E 03	-4.893E 03	-1.951E 03	-2.942E 03	5.684E 03	2.372E 00	1.234E-03	0.000	0.000
8.881E 01	1.250E 00	0.000	1.031E 03	-4.915E 03	-1.973E 03	-2.942E 03	5.707E 03	3.223E 00	1.677E-03	0.000	0.000
8.881E 01	1.251E 00	0.000	1.031E 03	-4.915E 03	-1.973E 03	-2.942E 03	5.707E 03	3.229E 00	1.678E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.220E 02	1.220E 02	2.313E-03	5.285E-02
4.041E 01	2.123E-01	1.223E 02	2.535E-03	6.184E-02
4.085E 01	9.286E 00	1.315E 02	2.643E-03	7.901E-02
4.134E 01	1.044E 01	1.420E 02	2.819E-03	6.554E-02
4.150E 01	3.510E 00	1.455E 02	2.870E-03	6.706E-02
4.184E 01	7.164E 00	1.526E 02	2.956E-03	6.406E-02
4.246E 01	1.242E 01	1.651E 02	3.092E-03	5.869E-02
4.282E 01	7.004E 00	1.721E 02	3.267E-03	5.205E-02
4.283E 01	1.831E-01	1.723E 02	2.994E-03	5.766E-02
4.290E 01	1.147E 00	1.734E 02	2.957E-03	5.785E-02
4.431E 01	2.340E 01	1.966E 02	3.073E-03	4.966E-02
4.480E 01	7.612E 00	2.044E 02	3.075E-03	4.844E-02
4.562E 01	1.197E 01	2.164E 02	3.090E-03	5.503E-02
4.625E 01	8.928E 00	2.253E 02	3.537E-03	4.999E-02
4.626E 01	1.393E-01	2.254E 02	3.200E-03	5.674E-02
4.633E 01	9.475E-01	2.264E 02	3.139E-03	5.811E-02
4.731E 01	1.146E 01	2.379E 02	3.126E-03	5.813E-02
4.811E 01	8.257E 00	2.461E 02	3.083E-03	5.612E-02
4.886E 01	7.140E 00	2.533E 02	2.990E-03	5.399E-02
5.030E 01	1.383E 01	2.671E 02	3.207E-03	4.211E-02
5.031E 01	9.480E-02	2.672E 02	2.867E-03	4.748E-02
5.084E 01	4.735E 00	2.719E 02	2.792E-03	4.345E-02
5.225E 01	1.141E 01	2.833E 02	2.760E-03	4.340E-02
5.435E 01	1.488E 01	2.982E 02	2.840E-03	3.559E-02
5.485E 01	3.528E 00	3.017E 02	2.992E-03	3.173E-02
5.560E 01	5.332E 00	3.071E 02	2.969E-03	3.025E-02
5.576E 01	1.130E 00	3.082E 02	3.006E-03	2.950E-02
5.636E 01	2.014E 00	3.102E 02	2.882E-03	2.343E-02
5.778E 01	4.921E 00	3.151E 02	2.893E-03	1.835E-02
5.784E 01	3.115E-01	3.154E 02	2.816E-03	2.191E-02
5.798E 01	7.692E-01	3.162E 02	2.965E-03	2.041E-02
5.806E 01	5.092E-01	3.167E 02	3.319E-03	1.438E-02
5.834E 01	1.786E 00	3.186E 02	2.581E-03	1.514E-02
5.856E 01	1.240E 00	3.197E 02	2.404E-03	1.590E-02
5.929E 01	3.803E 00	3.235E 02	2.399E-03	1.603E-02
6.031E 01	5.056E 00	3.286E 02	2.636E-03	2.566E-02
6.232E 01	1.068E 01	3.393E 02	3.060E-03	2.050E-02
6.374E 01	7.991E 00	3.473E 02	3.021E-03	2.547E-02
6.620E 01	1.230E 01	3.596E 02	3.259E-03	2.434E-02
6.658E 01	1.700E 00	3.613E 02	3.369E-03	2.257E-02
6.662E 01	1.748E-01	3.614E 02	3.416E-03	2.284E-02
6.682E 01	8.848E-01	3.623E 02	3.410E-03	2.279E-02
6.848E 01	7.873E 00	3.702E 02	3.229E-03	1.697E-02
6.915E 01	3.059E 00	3.733E 02	3.200E-03	1.554E-02
6.992E 01	3.274E 00	3.765E 02	3.133E-03	1.227E-02
7.064E 01	2.676E 00	3.792E 02	3.085E-03	1.011E-02
7.125E 01	1.999E 00	3.812E 02	3.049E-03	8.579E-03
7.220E 01	2.627E 00	3.838E 02	2.988E-03	6.413E-03
7.263E 01	1.031E 00	3.849E 02	2.969E-03	5.856E-03
7.416E 01	3.200E 00	3.881E 02	2.914E-03	4.550E-03
7.431E 01	2.621E-01	3.883E 02	2.898E-03	4.255E-03
7.506E 01	1.082E 00	3.894E 02	2.821E-03	2.937E-03
7.506E 01	1.765E-03	3.894E 02	2.820E-03	2.929E-03
7.639E 01	6.325E-01	3.900E 02	2.866E-03	3.811E-03
7.924E 01	1.619E 00	3.917E 02	2.945E-03	6.026E-03
8.314E 01	1.856E 00	3.935E 02	2.874E-03	4.650E-03

READING = 0061 BLOCK = 125 TIME = 212.102 MACH 6.0 PI = 745.499 TT = 2991.1

	X	DDRAG	CDRAG	CF	HC
88	8.595E 01	8.021E-01	3.943E 02	2.822E-03	3.823E-03
	8.881E 01	3.377E-01	3.947E 02	2.856E-03	4.745E-03
	8.881E 01	0.000	3.947E 02	2.856E-03	4.745E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	650.	(LBF)
MEASURED THRUST	699.	(LBF)
CALCULATED SPECIFIC IMPULSE	1196.	(LBF*SEC/LBM)
MEASURED SPECIFIC IMPULSE	1327.	(LBF*SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.2524	
MEASURED THRUST COEFFICIENT	0.2800	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	4867.	(LBF)
NET THRUST	800.	(LBF)
SPECIFIC IMPULSE	1561.	(LBF*SEC/LBM)
THRUST COEFFICIENT	0.3208	

MOMENTUM AND FORCES

INLET FRICTION DRAG	122.0	(LBF)
INLET MOMENTUM CHANGE	-725.9	(LBF)
COMBUSTOR FRICTION DRAG	239.2	(LBF)
COMBUSTOR STRUT DRAG	-51.20	(LBF)
COMBUSTOR MOMENTUM CHANGE	423.	(LBF)
NOZZLE FRICTION DRAG	53.39	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	933.	(LBF)
NOZZLE PRESSURE INTEGRAL	966.	(LBF)
EXTERNAL FRICTION DRAG	63.73	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1111.	(LBF)
TOTAL EXTERNAL DRAG	-1175.	(LBF)
TOTAL STRUT DRAG	-51.20	(LBF)
CAVITY FORCE	-1012.	(LBF)
CALCULATED LOAD CELL FORCE	-1587.	(LBF)
MEASURED LOAD CELL FORCE	-1488.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, -157.1, -117.6,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.8386	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.726	(IN)
NOZZLE SHROUD TRAILING EDGE	75.063	(IN)
NOZZLE PLUG TRAILING EDGE	88.815	(IN)
STRUT LEADING EDGE	57.979	(IN)
STRUT TRAILING EDGE	66.579	(IN)
COMBUSTOR EXIT	66.579	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.7806	
ADDITIVE DRAG COEFFICIENT	0.0292	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1842	
DELTA PT2	0.1376	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.4156	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1870	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.9118	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9156	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9298	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8857	
ENTHALPY AT P0 = SUPERSONIC	-8.14	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	22.61	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0248	
EQUIVALENCE RATIO	0.756	
COMBUSTOR EFFICIENCY	0.640	
TOTAL PRESSURE RATIO	0.0948	
COMBUSTOR EFFECTIVENESS	0.6126	

INJECTOR DISCHARGE COEFFICIENTS 0.5494, 0.4972, 0.7711, 0.7041

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9667	
NOZZLE COEFFICIENT = CT	0.8936	
PROCESS EFFICIENCY	0.9503	
KINETIC ENERGY EFFICIENCY	0.9269	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.824	B
1C	44.300	
2A	50.299	D
2C	46.250	E
3A	55.589	
3B	57.774	
4	46.324	

Reading 61

$t = 222.06$ sec.

3/4/75

READING = 0061 BLOCK = 136 TIME = 222.062 MACH 6.0 PT = 745.749 TT = 2991.4

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	Q	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	745.749	2991	667.0(792)	1.2931	28.955	2577											
0.000	0.388	405	-31.6(97)	1.3989	28.954	987	5.992	5912	1.827	0.10604	21.296	0.7841	3991	9.743	187.4		
SPIKE TIP NS		2	0 6														
0.600	18.700	2991	667.0(792)	1.2930	28.954	2577											
0.600	17.038	2929	648.1(774)	1.2950	28.954	2552	0.381	973	2.080	0.10604	21.296	0.7841	4066	1.603	190.9		
WIND TUNNEL		3	0 0														
0.000	745.749	2991	667.0(792)	1.2931	28.955	2577											
0.000	0.401	409	-30.7(98)	1.3989	28.954	991	5.960	5909	1.827	0.10846	21.781	0.7841	4081	9.959	187.3		
SPIKE TIP NS		4	0 0														
0.600	18.700	2991	667.0(792)	1.2930	28.954	2577											
0.600	16.951	2925	647.0(773)	1.2951	28.954	2551	0.392	999	2.080	0.10846	21.781	0.7841	4081	1.684	187.3		
INLET THROAT		5	0 4														
40.400	305.483	2908	641.9(768)	1.2957	28.954	2544											
40.400	19.042	1479	236.6(365)	1.3492	28.954	1851	2.433	4804	1.879	1.08653	21.296	0.0765	3354	76.047	157.8		
INLET UPNRSK		6	0 3														
40.400	305.483	2908	641.9(768)	1.2957	28.954	2544											
40.400	16.328	1421	221.3(350)	1.3525	28.954	1817	2.526	4588	1.879	0.98776	21.296	0.0842	3389	70.426	159.1		
INLET DNNRSK		7	0 4														
40.400	139.319	2908	641.9(768)	1.2957	28.954	2544											
40.400	119.039	2805	611.1(738)	1.2990	28.954	2501	0.497	1242	1.933	0.98776	21.296	0.0842	3389	19.071	159.1		
COMBUSTOR	0	8	1 3														
40.410	230.328	3066	642.7(833)	1.2888	28.369	2631											
40.410	24.775	1806	269.2(464)	1.3321	28.369	2053	2.105	4323	1.956	1.08878	21.343	0.0765	3354	75.151	157.1	0.07	0.56
COMBUSTOR	0	9	2 202														
40.835	188.894	3226	641.0(879)	1.2812	28.564	2682											
40.835	35.915	2202	330.4(575)	1.3155	28.565	2245	1.756	3941	1.978	1.09245	21.343	0.0763	3316	66.914	155.4	0.07	1.00
COMBUSTOR	0	10	3 21														
41.325	165.067	3219	638.7(877)	1.2813	28.564	2679											
41.325	30.143	2181	324.6(569)	1.3162	28.565	2235	1.773	3964	1.988	1.08107	21.343	0.0771	3225	66.601	151.1	0.07	1.00
COMBUSTOR	0	11	4 21														
41.500	150.720	3216	637.9(876)	1.2814	28.564	2678											
41.500	32.540	2262	348.1(592)	1.3133	28.565	2274	1.675	3808	1.993	1.07366	21.343	0.0776	3173	63.536	148.7	0.07	1.00
COMBUSTOR	0	12	5 21														
41.825	130.008	3211	636.3(875)	1.2815	28.564	2676											
41.825	32.579	2340	370.8(615)	1.3107	28.565	2310	1.578	3645	2.003	1.05561	21.343	0.0789	3076	59.792	144.1	0.07	1.00
COMBUSTOR	0	13	6 21														
42.460	101.174	3199	632.6(871)	1.2818	28.564	2672											
42.460	32.952	2479	411.9(656)	1.3059	28.565	2374	1.400	3323	2.019	1.00828	21.343	0.0826	2902	52.065	136.0	0.07	1.00
COMBUSTOR	0	14	7 21														
42.810	97.324	2853	634.0(794)	1.2985	27.372	2594											
42.810	30.352	2165	422.8(585)	1.3215	27.372	2280	1.426	3251	2.048	0.99284	21.394	0.0841	2816	50.158	131.6	0.14	0.11
COMBUSTOR	0	15	8 21														
42.820	100.176	2780	633.9(772)	1.3019	27.293	2568											
42.820	30.277	2089	422.9(563)	1.3251	27.293	2246	1.447	3249	2.040	0.99197	21.394	0.0842	2813	50.084	131.5	0.14	0.02
COMBUSTOR	0	16	9 21														
42.885	98.247	2768	633.4(768)	1.3025	27.281	2563											
42.885	29.794	2081	423.9(561)	1.3255	27.281	2242	1.444	3238	2.040	0.98730	21.394	0.0846	2799	49.684	130.8	0.14	0.00
COMBUSTOR	0	17	10 21														
44.310	78.500	2728	621.5(756)	1.3038	27.279	2546											
44.310	31.372	2193	457.6(594)	1.3216	27.279	2298	1.246	2863	2.051	0.91678	21.394	0.0911	2636	40.795	123.2	0.14	0.00
COMBUSTOR	0	18	11 21														
44.800	78.327	2713	616.9(752)	1.3043	27.279	2540											
44.800	31.914	2190	457.1(593)	1.3217	27.279	2297	1.231	2828	2.050	0.90177	21.394	0.0926	2658	39.636	123.3	0.14	0.00

READING = 0061 BLOCK = 136 TIME = 222.062 MACH 6.0 PI = 745.749 TT = 2991.4

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
45.605	82.799	2732	609.5(757)	1.3031	27.325	2545											
45.605	42.461	2333	486.7(635)	1.3163	27.325	2364	1.049	2479	2.047	0.89362	21.394	0.0935	2665	34.421	124.6	0.14	0.05
COMBUSTOR	0	20	13 21														
46.250	75.398	2652	630.2(829)	1.3096	23.983	2683											
46.250	44.503	2337	521.3(722)	1.3202	23.983	2529	0.923	2334	2.266	0.87915	21.642	0.0961	2665	31.885	123.2	0.49	0.06
COMBUSTOR	0	21	14 21														
46.260	77.206	2536	630.1(791)	1.3149	23.876	2635											
46.260	44.535	2219	521.3(683)	1.3256	23.876	2475	0.942	2333	2.251	0.87876	21.642	0.0962	2666	31.855	123.2	0.49	0.01
COMBUSTOR	0	22	15 21														
46.320	77.585	2517	629.5(785)	1.3157	23.860	2627											
46.320	44.724	2202	521.4(678)	1.3264	23.860	2467	0.943	2326	2.249	0.87554	21.642	0.0965	2670	31.646	123.4	0.49	0.00
COMBUSTOR	0	23	16 21														
47.310	77.583	2484	618.8(774)	1.3169	23.857	2611											
47.310	47.858	2208	524.5(680)	1.3262	23.857	2470	0.879	2173	2.244	0.81484	21.642	0.1037	2733	27.515	126.3	0.49	0.00
COMBUSTOR	0	24	17 21														
48.110	75.795	2457	609.8(765)	1.3178	23.857	2898											
48.110	44.848	2162	509.0(664)	1.3278	23.857	2446	0.918	2246	2.242	0.74841	21.642	0.1129	2808	26.125	129.7	0.49	0.00
COMBUSTOR	0	25	18 4														
48.845	72.123	2609	601.6(814)	1.3105	24.019	2660											
48.845	38.025	2236	473.5(687)	1.3232	24.019	2475	1.023	2532	2.263	0.66905	21.642	0.1263	2933	26.322	135.5	0.49	0.07
COMBUSTOR	0	26	19 6														
50.285	63.509	2544	604.1(887)	1.3184	21.360	2791											
50.285	27.964	2082	428.1(712)	1.3316	21.360	2540	1.168	2968	2.485	0.55102	21.904	0.1552	3132	25.413	143.0	0.87	0.08
COMBUSTOR	0	27	20 2														
50.295	63.472	2546	604.0(888)	1.3153	21.361	2792											
50.295	27.895	2082	427.5(712)	1.3316	21.361	2540	1.170	2972	2.485	0.55030	21.904	0.1554	3133	25.414	143.1	0.87	0.08
COMBUSTOR	0	28	21 4														
50.825	61.797	2611	599.0(911)	1.3122	21.426	2820											
50.825	24.192	2078	395.7(709)	1.3309	21.426	2533	1.259	3189	2.495	0.51466	21.904	0.1662	3200	25.504	146.1	0.87	0.10
COMBUSTOR	0	29	22 5														
52.235	54.115	3024	586.7(1064)	1.2925	21.806	2985											
52.235	26.100	2555	401.7(882)	1.3086	21.807	2761	1.102	3042	2.547	0.43863	21.904	0.1950	3375	20.739	154.1	0.87	0.22
COMBUSTOR	0	30	23 5														
54.335	49.382	3339	571.2(1182)	1.2764	22.126	3095											
54.335	18.487	2680	306.4(924)	1.2997	22.130	2798	1.301	3640	2.579	0.35951	21.904	0.2379	3604	20.336	164.6	0.87	0.31
COMBUSTOR	0	31	24 2														
54.835	49.308	3335	567.8(1180)	1.2765	22.129	3092											
54.835	16.379	2603	275.1(894)	1.3023	22.133	2760	1.387	3827	2.579	0.34482	21.904	0.2480	3646	20.508	166.4	0.87	0.31
COMBUSTOR	0	32	25 4														
55.585	47.839	3408	563.0(1207)	1.2729	22.208	3116											
55.585	15.154	2638	253.3(906)	1.3000	22.213	2771	1.421	3936	2.586	0.32504	21.904	0.2631	3701	19.884	169.0	0.87	0.34
COMBUSTOR	0	33	26 3														
55.760	47.549	3421	562.0(1213)	1.2717	22.224	3120											
55.760	14.868	2642	248.1(907)	1.2996	22.229	2771	1.430	3963	2.587	0.32077	21.904	0.2666	3713	19.755	169.5	0.87	0.34
COMBUSTOR	0	34	27 4														
56.345	41.178	3604	558.6(1282)	1.2611	22.406	3176											
56.345	10.846	2695	187.8(924)	1.2952	22.416	2782	1.548	4308	2.612	0.25146	21.904	0.3401	3877	16.834	177.0	0.87	0.40
COMBUSTOR	0	35	28 4														
57.770	46.450	3382	551.8(1197)	1.2734	22.210	3105											
57.770	7.651	2244	102.6(757)	1.3140	22.215	2569	1.846	4741	2.585	0.23242	21.904	0.3679	3949	17.125	180.3	0.87	0.34
COMBUSTOR	0	36	29 5														
57.825	38.972	3736	551.6(1332)	1.2528	22.551	3212											
57.825	10.098	2800	164.5(961)	1.2894	22.567	2821	1.560	4401	2.624	0.23176	21.904	0.3690	3951	15.852	180.4	0.87	0.44
COMBUSTOR	0	37	30 3														
57.965	39.224	3712	551.0(1323)	1.2543	22.528	3205											
57.965	9.791	2756	157.1(945)	1.2913	22.543	2802	1.585	4440	2.622	0.23010	21.904	0.3717	3954	15.875	180.5	0.87	0.43

READING = 0061 BLOCK = 136 TIME = 222.062 MACH 6.0 PT = 745.749 TT = 2991.4

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	M/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 11														
58.045	53.818	3196	550.7(1127)	1.2831	22.041	3041											
58.045	6.443	1943	66.6(649)	1.3279	22.043	2413	2.040	4922	2.558	0.23276	21.904	0.3674	3957	17.803	180.6	0.87	0.29
COMBUSTOR	0	39	32 5														
58.325	65.963	2996	549.6(1052)	1.2928	21.863	2968											
58.325	5.212	1622	30.0(536)	1.3442	21.864	2226	2.290	5099	2.522	0.23191	21.904	0.3688	3964	18.378	181.0	0.87	0.23
COMBUSTOR	0	40	33 4														
58.551	54.730	3195	548.8(1126)	1.2831	22.044	3041											
58.551	6.301	1924	56.2(642)	1.3287	22.046	2401	2.064	4955	2.556	0.23151	21.904	0.3694	3969	17.826	181.2	0.87	0.29
COMBUSTOR	0	41	34 5														
59.275	39.273	3782	546.2(1349)	1.2498	22.609	3224											
59.275	9.787	2817	145.2(967)	1.2860	22.628	2824	1.586	4479	2.625	0.22788	21.904	0.3753	3990	15.863	182.2	0.87	0.46
COMBUSTOR	0	42	35 4														
60.295	36.268	4069	542.4(1459)	1.2296	22.909	3295											
60.295	11.737	3255	185.1(1131)	1.2668	22.951	2989	1.415	4229	2.647	0.22643	21.904	0.3777	4014	14.880	183.3	0.87	0.55
COMBUSTOR	0	43	36 4														
62.305	40.832	3822	533.9(1364)	1.2470	22.678	3233											
62.305	10.050	2845	126.4(976)	1.2860	22.699	2831	1.595	4516	2.622	0.23431	21.904	0.3650	4014	16.444	183.3	0.87	0.48
COMBUSTOR	0	44	37 5														
63.725	36.355	4313	527.6(1553)	1.2104	23.203	3344											
63.725	15.350	3690	232.7(1298)	1.2420	23.273	3129	1.228	3841	2.655	0.24066	21.904	0.3553	4012	14.565	183.2	0.87	0.64
COMBUSTOR	0	45	38 4														
66.189	33.711	4439	514.3(1601)	1.1986	23.372	3364											
66.189	17.110	3959	272.7(1403)	1.2237	23.458	3204	1.085	3477	2.665	0.22812	21.904	0.3749	4010	12.326	183.1	0.87	0.70
COMBUSTOR	0	46	39 3														
66.565	31.249	4460	512.1(1609)	1.1956	23.401	3366											
66.565	16.958	4031	292.1(1432)	1.2182	23.487	3224	1.029	3317	2.672	0.21207	21.904	0.4032	4010	10.933	183.1	0.87	0.71
COMBUSTOR REGEN		47	40 21														
66.565	31.249	4660	636.0(1693)	1.1821	23.314	3428											
66.565	8.173	3740	157.9(1313)	1.2319	23.516	3121	1.567	4891	2.699	0.21207	21.904	0.4032	4174	16.120	190.6	0.87	0.71
NOZZLE AE		48	41 4														
88.801	31.249	4460	512.1(1569)	1.1956	23.401	3366											
88.801	0.909	2194	*463.7(716)	1.2993	23.551	2453	2.848	6988	2.672	0.04414	21.904	1.9373	5208	4.794	237.8	0.87	0.71
NOZZLE PO		49	42 4														
88.801	31.249	4460	512.1(1569)	1.1956	23.401	3366											
88.801	0.388	1795	*606.7(573)	1.3165	23.551	2234	3.349	7482	2.672	0.02464	21.904	3.4702	5439	2.866	248.6	0.87	0.71
NOZZLE AE REGEN		50	43 5														
88.801	31.249	4660	636.0(1693)	1.1821	23.314	3428											
88.801	0.969	2395	*389.2(790)	1.2915	23.551	2556	2.803	7162	2.699	0.04415	21.904	1.9371	5357	4.914	244.6	0.87	0.71
NOZZLE PO REGEN		51	44 5														
88.801	31.249	4660	636.0(1693)	1.1821	23.314	3428											
88.801	0.388	1939	*556.0(624)	1.3099	23.551	2315	3.336	7723	2.699	0.02356	21.904	3.6302	5619	2.827	256.5	0.87	0.71
FICTIVE COMBUSTR		71	64 0														
66.565	305.483	5263	512.1(1924)	1.1702	24.291	3550											
66.565	0.388	1406	*1163.3(427)	1.3263	24.714	1937	4.727	9156	2.494	0.04040	21.904	2.1167	6444	5.749	294.2	0.87	1.00
FICTIVE NOZZLE		72	65 0														
88.801	21.052	4387	479.6(1579)	1.1951	23.404	3337											
88.801	1.093	2455	*366.9(812)	1.2893	23.551	2585	2.518	6508	2.698	0.04415	21.904	1.9371	4973	4.465	227.0	0.87	0.71

READING = 0061 BLOCK = 136 TIME = 222.062 MACH 6.0 PT = 745.749 TT = 2991.4 PAGE 4

XABS	P-IB	P-OB	PDA	DDX	Q-IB	Q-OB	CAWALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OB/PT0
6.981E-01	1.045E 00	0.000	-4.553E-01	0.000	0.000	0.000	2.470E-02	2.693E 00	1.401E-03	0.000	0.000
1.836E 01	1.045E 00	0.000	-3.481E 01	0.000	0.000	0.000	1.634E 02	2.693E 00	1.401E-03	0.000	0.000
3.070E 01	2.245E 00	0.000	-1.682E 02	0.000	0.000	0.000	5.053E 02	5.786E 00	3.010E-03	0.000	0.000
3.508E 01	3.945E 00	0.000	-3.688E 02	0.000	0.000	0.000	6.804E 02	1.017E 01	5.290E-03	0.000	0.000
3.555E 01	4.060E 00	0.000	-4.052E 02	0.000	0.000	0.000	7.013E 02	1.046E 01	5.444E-03	0.000	0.000
3.606E 01	3.970E 00	0.000	-4.460E 02	-3.339E 02	-3.339E 02	0.000	7.246E 02	1.023E 01	5.323E-03	0.000	0.000
3.648E 01	4.261E 00	0.000	-4.812E 02	-3.419E 02	-3.419E 02	0.000	7.443E 02	1.098E 01	5.714E-03	0.000	0.000
3.670E 01	4.252E 00	5.683E 00	-5.585E 02	-3.464E 02	-3.464E 02	0.000	7.548E 02	1.096E 01	5.702E-03	1.465E 01	7.621E-03
3.671E 01	4.252E 00	5.719E 00	-5.586E 02	-3.465E 02	-3.465E 02	0.000	7.551E 02	1.096E 01	5.702E-03	1.474E 01	7.669E-03
3.701E 01	4.240E 00	7.520E 00	-5.621E 02	-3.526E 02	-3.526E 02	0.000	7.864E 02	1.093E 01	5.686E-03	1.938E 01	1.008E-02
3.737E 01	4.102E 00	9.700E 00	-5.598E 02	-3.602E 02	-3.602E 02	0.000	8.247E 02	1.057E 01	5.501E-03	2.500E 01	1.301E-02
3.803E 01	3.855E 00	1.258E 01	-5.398E 02	-3.747E 02	-3.747E 02	0.000	8.953E 02	9.935E 00	5.169E-03	3.242E 01	1.687E-02
3.875E 01	1.148E 01	1.574E 01	-5.498E 02	-4.129E 02	-3.965E 02	-1.648E 01	9.754E 02	2.960E 01	1.540E-02	4.057E 01	2.111E-02
3.883E 01	1.238E 01	1.611E 01	-5.538E 02	-4.175E 02	-3.997E 02	-1.781E 01	9.850E 02	3.191E 01	1.660E-02	4.153E 01	2.161E-02
3.901E 01	1.424E 01	1.700E 01	-5.609E 02	-4.276E 02	-4.070E 02	-2.056E 01	1.005E 03	3.670E 01	1.909E-02	4.388E 01	2.280E-02
3.950E 01	1.850E 01	1.950E 01	-5.842E 02	-4.596E 02	-4.314E 02	-2.818E 01	1.061E 03	4.768E 01	2.481E-02	5.025E 01	2.614E-02
3.985E 01	1.789E 01	2.130E 01	-5.901E 02	-4.866E 02	-4.530E 02	-3.363E 01	1.102E 03	4.611E 01	2.399E-02	5.490E 01	2.856E-02
4.000E 01	1.764E 01	2.031E 01	-5.905E 02	-4.987E 02	-4.628E 02	-3.584E 01	1.119E 03	4.547E 01	2.366E-02	5.235E 01	2.723E-02
4.032E 01	2.697E 01	1.810E 01	-6.020E 02	-5.270E 02	-4.862E 02	-4.077E 01	1.156E 03	6.952E 01	3.617E-02	4.665E 01	2.427E-02
4.040E 01	2.914E 01	1.989E 01	-6.070E 02	-5.337E 02	-4.918E 02	-4.190E 01	1.165E 03	7.510E 01	3.907E-02	5.126E 01	2.667E-02
4.041E 01	2.943E 01	2.012E 01	-6.075E 02	-5.346E 02	-4.925E 02	-4.205E 01	1.166E 03	7.584E 01	3.946E-02	5.187E 01	2.699E-02
4.083E 01	4.163E 01	3.020E 01	-6.358E 02	-5.736E 02	-5.252E 02	-4.841E 01	1.216E 03	1.073E 02	5.582E-02	7.783E 01	4.050E-02
4.132E 01	5.571E 01	4.575E 00	-7.167E 02	-6.212E 02	-5.656E 02	-5.557E 01	1.274E 03	1.436E 02	7.471E-02	1.179E 01	6.135E-03
4.150E 01	6.075E 01	4.330E 00	-7.649E 02	-6.389E 02	-5.809E 02	-5.806E 01	1.294E 03	1.566E 02	8.146E-02	1.116E 01	5.806E-03
4.182E 01	6.128E 01	3.875E 00	-8.544E 02	-6.730E 02	-6.103E 02	-6.265E 01	1.333E 03	1.579E 02	8.218E-02	9.987E 00	5.196E-03
4.246E 01	6.232E 01	3.579E 00	-1.016E 03	-7.517E 02	-6.690E 02	-8.278E 01	1.408E 03	1.606E 02	8.357E-02	9.224E 00	4.799E-03
4.281E 01	5.729E 01	3.416E 00	-1.096E 03	-8.032E 02	-7.003E 02	-1.030E 02	1.450E 03	1.476E 02	7.682E-02	8.804E 00	4.581E-03
4.282E 01	5.714E 01	3.412E 00	-1.098E 03	-8.048E 02	-7.012E 02	-1.036E 02	1.451E 03	1.473E 02	7.662E-02	8.792E 00	4.575E-03
4.288E 01	5.621E 01	3.381E 00	-1.111E 03	-8.149E 02	-7.069E 02	-1.081E 02	1.459E 03	1.449E 02	7.537E-02	8.714E 00	4.534E-03
4.431E 01	3.567E 01	2.707E 01	-1.251E 03	-1.070E 03	-8.211E 02	-2.489E 02	1.631E 03	9.194E 01	4.783E-02	6.977E 01	3.630E-02
4.480E 01	2.861E 01	3.522E 01	-1.242E 03	-1.168E 03	-8.558E 02	-3.121E 02	1.690E 03	7.374E 01	3.837E-02	9.076E 01	4.722E-02
4.560E 01	3.633E 01	4.859E 01	-1.204E 03	-1.327E 03	-9.101E 02	-4.170E 02	1.789E 03	9.364E 01	4.872E-02	1.252E 02	6.516E-02
4.625E 01	4.252E 01	4.649E 01	-1.155E 03	-1.461E 03	-9.525E 02	-5.086E 02	1.868E 03	1.096E 02	5.702E-02	1.198E 02	6.233E-02
4.626E 01	4.262E 01	4.645E 01	-1.154E 03	-1.463E 03	-9.531E 02	-5.102E 02	1.869E 03	1.098E 02	5.715E-02	1.197E 02	6.229E-02
4.632E 01	4.319E 01	4.626E 01	-1.149E 03	-1.476E 03	-9.570E 02	-5.194E 02	1.876E 03	1.113E 02	5.791E-02	1.192E 02	6.203E-02
4.731E 01	5.269E 01	4.303E 01	-1.075E 03	-1.707E 03	-1.020E 03	-6.871E 02	1.998E 03	1.358E 02	7.065E-02	1.109E 02	5.770E-02
4.811E 01	4.927E 01	4.042E 01	-9.921E 02	-1.902E 03	-1.069E 03	-8.334E 02	2.097E 03	1.270E 02	6.607E-02	1.042E 02	5.420E-02
4.884E 01	3.802E 01	3.802E 01	-8.599E 02	-2.081E 03	-1.112E 03	-9.683E 02	2.189E 03	9.800E 01	5.099E-02	9.800E 01	5.099E-02
5.028E 01	2.796E 01	2.796E 01	-6.150E 02	-2.409E 03	-1.194E 03	-1.215E 03	2.369E 03	7.207E 01	3.750E-02	7.207E 01	3.750E-02
5.029E 01	2.789E 01	2.789E 01	-6.135E 02	-2.411E 03	-1.194E 03	-1.217E 03	2.370E 03	7.189E 01	3.740E-02	7.189E 01	3.740E-02
5.082E 01	2.419E 01	2.419E 01	-5.416E 02	-2.522E 03	-1.223E 03	-1.298E 03	2.437E 03	6.235E 01	3.244E-02	6.235E 01	3.244E-02
5.223E 01	2.610E 01	2.610E 01	-3.557E 02	-2.789E 03	-1.296E 03	-1.493E 03	2.614E 03	6.727E 01	3.500E-02	6.727E 01	3.500E-02
5.433E 01	1.849E 01	1.849E 01	-1.102E 02	-3.130E 03	-1.396E 03	-1.734E 03	2.880E 03	4.765E 01	2.479E-02	4.765E 01	2.479E-02
5.483E 01	1.638E 01	1.638E 01	-6.488E 01	-3.204E 03	-1.418E 03	-1.785E 03	2.944E 03	4.221E 01	2.196E-02	4.221E 01	2.196E-02
5.558E 01	1.515E 01	1.515E 01	-3.866E 00	-3.309E 03	-1.451E 03	-1.858E 03	3.040E 03	3.906E 01	2.032E-02	3.906E 01	2.032E-02
5.576E 01	1.487E 01	1.487E 01	9.631E 00	-3.332E 03	-1.458E 03	-1.874E 03	3.062E 03	3.832E 01	1.994E-02	3.832E 01	1.994E-02
5.634E 01	7.779E 00	1.391E 01	1.760E 02	-3.405E 03	-1.481E 03	-1.924E 03	3.102E 03	2.005E 01	1.043E-02	3.586E 01	1.866E-02
5.777E 01	7.651E 00	7.651E 00	2.527E 02	-3.554E 03	-1.531E 03	-2.023E 03	3.209E 03	1.972E 01	1.026E-02	1.972E 01	1.026E-02
5.782E 01	1.279E 01	7.409E 00	2.549E 02	-3.559E 03	-1.532E 03	-2.026E 03	3.216E 03	3.296E 01	1.715E-02	1.910E 01	9.935E-03
5.796E 01	1.279E 01	6.794E 00	2.595E 02	-3.571E 03	-1.537E 03	-2.034E 03	3.234E 03	3.296E 01	1.715E-02	1.751E 01	9.110E-03
5.804E 01	6.443E 00	6.443E 00	2.622E 02	-3.578E 03	-1.540E 03	-2.039E 03	3.244E 03	1.660E 01	8.639E-03	1.660E 01	8.639E-03
5.832E 01	5.212E 00	5.212E 00	2.698E 02	-3.602E 03	-1.549E 03	-2.054E 03	3.280E 03	1.343E 01	6.990E-03	1.343E 01	6.990E-03
5.855E 01	6.301E 00	6.301E 00	2.754E 02	-3.621E 03	-1.556E 03	-2.065E 03	3.309E 03	1.624E 01	8.449E-03	1.624E 01	8.449E-03
5.927E 01	9.787E 00	9.787E 00	2.972E 02	-3.676E 03	-1.577E 03	-2.099E 03	3.402E 03	2.523E 01	1.312E-02	2.523E 01	1.312E-02
6.029E 01	1.174E 01	1.174E 01	3.221E 02	-3.759E 03	-1.605E 03	-2.154E 03	3.532E 03	3.025E 01	1.574E-02	3.025E 01	1.574E-02
6.230E 01	1.005E 01	1.005E 01	3.246E 02	-3.945E 03	-1.655E 03	-2.289E 03	3.790E 03	2.590E 01	1.348E-02	2.590E 01	1.348E-02

READING = 0061 BLOCK = 136 TIME = 222.062 MACH 6.0 PT = 745.749 TT = 2991.4

XABS	P-IB	P-OB	PDA	QOX	W-IB	W-OB	CAWALL	P-IB/PS0	P-IB/P10	P-OB/P80	P-OB/P10
6.372E 01	1.535E 01	1.535E 01	3.246E 02	-4.085E 03	-1.692E 03	-2.393E 03	5.972E 03	3.956E 01	2.058E-02	3.956E 01	2.058E-02
6.619E 01	1.711E 01	1.711E 01	3.246E 02	-4.375E 03	-1.771E 03	-2.604E 03	4.269E 03	4.410E 01	2.294E-02	4.410E 01	2.294E-02
6.656E 01	1.654E 01	1.738E 01	3.246E 02	-4.425E 03	-1.785E 03	-2.640E 03	4.337E 03	4.262E 01	2.218E-02	4.479E 01	2.330E-02
6.660E 01	1.654E 01	1.741E 01	3.246E 02	-4.430E 03	-1.786E 03	-2.643E 03	4.342E 03	4.262E 01	2.218E-02	4.486E 01	2.334E-02
6.680E 01	1.570E 01	1.755E 01	3.246E 02	-4.455E 03	-1.794E 03	-2.661E 03	4.368E 03	4.046E 01	2.105E-02	4.523E 01	2.353E-02
6.846E 01	8.720E 00	7.360E 00	4.622E 02	-4.627E 03	-1.844E 03	-2.784E 03	4.583E 03	2.247E 01	1.169E-02	1.897E 01	9.869E-03
6.913E 01	6.312E 00	7.147E 00	6.117E 02	-4.682E 03	-1.859E 03	-2.823E 03	4.665E 03	1.627E 01	8.464E-03	1.842E 01	9.584E-03
6.990E 01	3.545E 00	5.516E 00	7.656E 02	-4.742E 03	-1.873E 03	-2.869E 03	4.760E 03	9.137E 00	4.754E-03	1.422E 01	7.396E-03
7.062E 01	2.779E 00	3.990E 00	8.663E 02	-4.798E 03	-1.883E 03	-2.915E 03	4.848E 03	7.162E 00	3.726E-03	1.028E 01	5.350E-03
7.123E 01	2.130E 00	3.278E 00	9.313E 02	-4.843E 03	-1.890E 03	-2.953E 03	4.922E 03	5.490E 00	2.856E-03	8.449E 00	4.396E-03
7.218E 01	1.517E 00	2.170E 00	1.002E 03	-4.902E 03	-1.899E 03	-3.002E 03	5.036E 03	3.911E 00	2.035E-03	5.593E 00	2.910E-03
7.261E 01	1.240E 00	2.027E 00	1.027E 03	-4.923E 03	-1.903E 03	-3.021E 03	5.088E 03	3.196E 00	1.663E-03	5.225E 00	2.719E-03
7.414E 01	8.666E-01	1.520E 00	1.092E 03	-4.985E 03	-1.913E 03	-3.072E 03	5.273E 03	2.233E 00	1.162E-03	3.917E 00	2.038E-03
7.429E 01	8.300E-01	1.354E 00	1.097E 03	-4.990E 03	-1.913E 03	-3.076E 03	5.290E 03	2.139E 00	1.113E-03	3.490E 00	1.816E-03
7.504E 01	9.274E-01	5.250E-01	1.128E 03	-5.018E 03	-1.918E 03	-3.100E 03	5.374E 03	2.390E 00	1.244E-03	1.353E 00	7.040E-04
7.505E 01	9.279E-01	5.206E-01	1.129E 03	-5.018E 03	-1.918E 03	-3.100E 03	5.375E 03	2.391E 00	1.244E-03	1.342E 00	6.980E-04
7.637E 01	1.100E 00	0.000	1.150E 03	-5.074E 03	-1.925E 03	-3.149E 03	5.426E 03	2.835E 00	1.475E-03	0.000	0.000
7.922E 01	1.765E 00	0.000	1.208E 03	-5.086E 03	-1.938E 03	-3.149E 03	5.525E 03	4.549E 00	2.367E-03	0.000	0.000
8.312E 01	1.215E 00	0.000	1.271E 03	-5.100E 03	-1.952E 03	-3.149E 03	5.630E 03	3.131E 00	1.629E-03	0.000	0.000
8.593E 01	9.500E-01	0.000	1.295E 03	-5.113E 03	-1.965E 03	-3.149E 03	5.684E 03	2.448E 00	1.274E-03	0.000	0.000
8.879E 01	1.390E 00	0.000	1.324E 03	-5.135E 03	-1.986E 03	-3.149E 03	5.707E 03	3.582E 00	1.864E-03	0.000	0.000
8.880E 01	1.391E 00	0.000	1.324E 03	-5.135E 03	-1.986E 03	-3.149E 03	5.707E 03	3.585E 00	1.865E-03	0.000	0.000

READING = 0061 BLOCK = 136 TIME = 222.062 MACH 6.0 PT = 745.749 TT = 2991.4

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.227E 02	1.227E 02	2.318E-03	5.302E-02
4.041E 01	2.118E-01	1.229E 02	2.527E-03	6.221E-02
4.083E 01	9.000E 00	1.319E 02	2.643E-03	7.718E-02
4.132E 01	1.047E 01	1.424E 02	2.800E-03	6.485E-02
4.150E 01	3.807E 00	1.462E 02	2.854E-03	6.645E-02
4.182E 01	6.861E 00	1.531E 02	2.936E-03	6.370E-02
4.246E 01	1.270E 01	1.658E 02	3.073E-03	5.859E-02
4.281E 01	6.741E 00	1.725E 02	3.239E-03	5.277E-02
4.282E 01	1.834E-01	1.727E 02	2.982E-03	5.767E-02
4.288E 01	1.154E 00	1.738E 02	2.949E-03	5.758E-02
4.431E 01	2.334E 01	1.972E 02	3.057E-03	5.345E-02
4.480E 01	7.311E 00	2.045E 02	3.054E-03	5.370E-02
4.560E 01	1.114E 01	2.156E 02	3.075E-03	6.066E-02
4.625E 01	8.636E 00	2.243E 02	3.517E-03	5.482E-02
4.626E 01	1.325E-01	2.244E 02	3.178E-03	6.243E-02
4.632E 01	7.330E-01	2.251E 02	3.115E-03	6.394E-02
4.731E 01	1.120E 01	2.363E 02	3.085E-03	6.350E-02
4.811E 01	8.125E 00	2.444E 02	3.029E-03	6.149E-02
4.884E 01	7.118E 00	2.516E 02	2.912E-03	5.886E-02
5.028E 01	1.437E 01	2.659E 02	3.264E-03	4.542E-02
5.029E 01	9.841E-02	2.660E 02	2.926E-03	5.122E-02
5.082E 01	4.896E 00	2.709E 02	2.859E-03	4.819E-02
5.223E 01	1.174E 01	2.827E 02	2.858E-03	4.752E-02
5.433E 01	1.573E 01	2.984E 02	2.895E-03	3.778E-02
5.483E 01	3.854E 00	3.023E 02	3.027E-03	3.348E-02
5.558E 01	5.822E 00	3.081E 02	2.990E-03	3.198E-02
5.576E 01	1.337E 00	3.094E 02	3.022E-03	3.119E-02
5.634E 01	2.136E 00	3.138E 02	2.902E-03	2.463E-02
5.777E 01	5.321E 00	3.169E 02	2.919E-03	1.954E-02
5.782E 01	3.349E-01	3.172E 02	2.847E-03	2.375E-02
5.796E 01	8.272E-01	3.180E 02	3.021E-03	2.202E-02
5.804E 01	5.530E-01	3.186E 02	3.396E-03	1.529E-02
5.832E 01	1.939E 00	3.205E 02	2.615E-03	1.629E-02
5.855E 01	1.328E 00	3.219E 02	2.475E-03	1.929E-02
5.927E 01	4.034E 00	3.259E 02	2.696E-03	2.416E-02
6.029E 01	5.737E 00	3.316E 02	3.015E-03	2.409E-02
6.230E 01	1.233E 01	3.440E 02	3.092E-03	2.158E-02
6.372E 01	8.622E 00	3.526E 02	3.052E-03	2.748E-02
6.619E 01	1.339E 01	3.660E 02	3.296E-03	2.577E-02
6.656E 01	1.879E 00	3.678E 02	3.404E-03	2.408E-02
6.660E 01	1.926E-01	3.680E 02	3.458E-03	2.434E-02
6.680E 01	9.762E-01	3.690E 02	3.453E-03	2.426E-02
6.846E 01	8.566E 00	3.776E 02	3.298E-03	1.790E-02
6.913E 01	3.275E 00	3.809E 02	3.267E-03	1.614E-02
6.990E 01	3.468E 00	3.843E 02	3.204E-03	1.257E-02
7.062E 01	2.808E 00	3.871E 02	3.158E-03	1.032E-02
7.123E 01	2.095E 00	3.892E 02	3.127E-03	8.840E-03
7.218E 01	2.772E 00	3.920E 02	3.073E-03	6.692E-03
7.261E 01	1.094E 00	3.931E 02	3.055E-03	6.121E-03
7.414E 01	3.418E 00	3.965E 02	3.007E-03	4.852E-03
7.429E 01	2.824E-01	3.968E 02	2.993E-03	4.518E-03
7.504E 01	1.192E 00	3.980E 02	2.931E-03	3.303E-03
7.505E 01	1.993E-03	3.980E 02	2.930E-03	3.296E-03
7.637E 01	7.316E-01	3.987E 02	2.983E-03	4.524E-03
7.922E 01	1.812E 00	4.005E 02	3.034E-03	6.402E-03
8.312E 01	1.978E 00	4.025E 02	2.961E-03	4.815E-03

READING = 0061 BLOCK = 136 TIME = 222.062 MACH 6.0 PT = 745.749 TT = 2991.4

X	DDRAG	CDRAG	CF	HC
8.593E 01	8.469E-01	4.034E 02	2.912E-03	3.976E-03
8.879E 01	3.661E-01	4.037E 02	2.953E-03	5.275E-03
8.880E 01	0.000	4.037E 02	2.953E-03	5.278E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	889.	(LBF)
MEASURED THRUST	872.	(LBF)
CALCULATED SPECIFIC IMPULSE	1463.	(LBF*SEC/LBM)
MEASURED SPECIFIC IMPULSE	1434.	(LBF*SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.3562	
MEASURED THRUST COEFFICIENT	0.3493	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	5115.	(LBF)
NET THRUST	1031.	(LBF)
SPECIFIC IMPULSE	1696.	(LBF*SEC/LBM)
THRUST COEFFICIENT	0.4130	

MOMENTUM AND FORCES

INLET FRICTION DRAG	122.7	(LBF)
INLET MOMENTUM CHANGE	-729.7	(LBF)
COMBUSTOR FRICTION DRAG	245.1	(LBF)
COMBUSTOR STRUT DRAG	-40.16	(LBF)
COMBUSTOR MOMENTUM CHANGE	656.	(LBF)
NOZZLE FRICTION DRAG	35.88	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	963.	(LBF)
NOZZLE PRESSURE INTEGRAL	999.	(LBF)
EXTERNAL FRICTION DRAG	64.86	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1115.	(LBF)
TOTAL EXTERNAL DRAG	-1180.	(LBF)
TOTAL STRUT DRAG	-40.16	(LBF)
CAVITY FORCE	-1072.	(LBF)
CALCULATED LOAD CELL FORCE	-1364.	(LBF)
MEASURED LOAD CELL FORCE	-1381.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, 0.0, -159.8, -119.9,	

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.7841	
ADDITIVE DRAG COEFFICIENT	0.0285	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1841	
DELTA PT2	0.1380	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4096	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1868	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9108	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9154	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9299	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8863	
ENTHALPY AT P0 - SUPERSONIC	-7.70	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	22.78	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0285	
EQUIVALENCE RATIO	0.869	
COMBUSTOR EFFICIENCY	0.710	
TOTAL PRESSURE RATIO	0.1023	
COMBUSTOR EFFECTIVENESS	0.6747	
INJECTOR DISCHARGE COEFFICIENTS	0.5318, 0.4736, 0.7682, 0.7023	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9548	
NOZZLE COEFFICIENT - CT	0.8790	
PROCESS EFFICIENCY	0.9138	
KINETIC ENERGY EFFICIENCY	0.8995	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	1.8247	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	36.709	(IN)
NOZZLE SHROUD TRAILING EDGE	75.049	(IN)
NOZZLE PLUG TRAILING EDGE	88.801	(IN)
STRUT LEADING EDGE	57.965	(IN)
STRUT TRAILING EDGE	66.565	(IN)
COMBUSTOR EXIT	66.565	(IN)

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	42.810	B
1C	44.300	
2A	50.285	D
2C	46.250	E
3A	55.575	
3B	57.760	
4	46.310	

Reading 61

t = 231.06 sec.

READING = 0061 BLOCK = 146 TIME = 231.062 MACH 6.0 PI = 745.999 TI = 2984.8
RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H		GAMMA	MOLWT	SOAV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	745.999	2985	665.0	(790)	1.2933	28.955	2575											
0.000	0.387	404	-32.0	(97)	1.3988	28.954	985	5.995	5905	1.826	0.10605	13.500	0.4970	2527	9.733	187.2		
SPIKE TIP NS		2	0	6														
0.600	19.100	2985	665.0	(790)	1.2932	28.954	2574											
0.600	17.486	2925	647.1	(773)	1.2951	28.954	2551	0.371	947	2.077	0.10605	13.500	0.4970	2623	1.561	194.3		
WIND TUNNEL		3	0	0														
0.000	745.999	2985	665.0	(790)	1.2933	28.955	2575											
0.000	0.413	412	-30.1	(99)	1.3989	28.954	994	5.932	5898	1.826	0.11098	14.127	0.4970	2642	10.172	187.0		
SPIKE TIP NS		4	0	0														
0.600	19.100	2985	665.0	(790)	1.2932	28.954	2574											
0.600	17.312	2919	645.1	(771)	1.2953	28.954	2548	0.392	999	2.077	0.11098	14.127	0.4970	2642	1.722	187.0		
INLET THROAT		5	0	3														
40.400	215.919	2903	640.2	(766)	1.2959	28.954	2541											
40.400	17.478	1978	265.1	(392)	1.3438	28.954	1908	2.276	4344	1.903	0.90143	13.500	0.0585	2085	60.856	154.4		
INLET UPNRSK		6	0	3														
40.400	215.919	2903	640.2	(766)	1.2959	28.954	2541											
40.400	14.934	1516	246.4	(375)	1.3471	28.954	1872	2.371	4439	1.903	0.81949	13.500	0.0643	2109	56.535	156.2		
INLET DNNRSK		7	0	4														
40.400	112.800	2903	640.2	(766)	1.2959	28.954	2541											
40.400	95.384	2793	607.4	(734)	1.2994	28.954	2496	0.513	1281	1.947	0.81949	13.500	0.0643	2109	16.310	156.2		
COMBUSTOR	0	8	1	3														
40.410	215.899	2902	640.1	(766)	1.2959	28.954	2541											
40.410	17.474	1578	263.0	(392)	1.3438	28.954	1908	2.276	4344	1.903	0.90131	13.500	0.0585	2085	60.847	154.4		
COMBUSTOR	0	9	2	3														
40.646	215.749	2899	639.0	(765)	1.2960	28.954	2540											
40.646	17.625	1579	263.4	(392)	1.3437	28.954	1909	2.271	4335	1.902	0.90640	13.500	0.0582	2082	61.067	154.2		
COMBUSTOR	0	10	3	3														
41.117	216.256	2891	636.7	(763)	1.2963	28.954	2537											
41.117	17.415	1569	260.6	(389)	1.3443	28.954	1903	2.279	4338	1.901	0.90217	13.500	0.0584	2081	60.823	154.1		
COMBUSTOR	0	11	4	3														
41.500	218.439	2885	634.8	(761)	1.2965	28.954	2534											
41.500	16.817	1547	254.8	(384)	1.3454	28.954	1891	2.306	4361	1.900	0.88806	13.500	0.0594	2085	60.183	154.5		
COMBUSTOR	0	12	5	3														
41.626	219.674	2882	634.2	(760)	1.2965	28.954	2533											
41.626	16.535	1537	252.0	(381)	1.3460	28.954	1885	2.320	4373	1.899	0.88139	13.500	0.0598	2088	59.895	154.7		
COMBUSTOR	0	13	6	5														
42.117	205.879	2874	631.6	(758)	1.2968	28.954	2530											
42.117	16.164	1549	255.1	(384)	1.3453	28.954	1891	2.295	4340	1.903	0.84885	13.500	0.0621	2078	57.255	153.9		
COMBUSTOR	0	14	7	5														
42.460	185.308	2868	629.8	(756)	1.2970	28.954	2527											
42.460	16.359	1592	266.8	(396)	1.3431	28.954	1916	2.224	4262	1.909	0.82055	13.500	0.0642	2058	54.349	152.4		
COMBUSTOR	0	15	8	5														
42.617	176.843	2865	629.0	(755)	1.2971	28.954	2526											
42.617	16.394	1610	271.7	(401)	1.3421	28.954	1926	2.195	4228	1.912	0.80682	13.500	0.0654	2049	52.997	151.7		
COMBUSTOR	0	16	9	5														
43.611	135.255	2845	623.0	(749)	1.2977	28.954	2518											
43.611	16.424	1711	299.0	(428)	1.3373	28.954	1982	2.031	4027	1.929	0.72414	13.500	0.0728	1996	45.314	147.8		
COMBUSTOR	0	17	10	5														
43.676	133.496	2844	622.6	(749)	1.2978	28.954	2517											
43.676	16.475	1717	300.6	(429)	1.3370	28.954	1986	2.021	4014	1.929	0.72152	13.500	0.0731	1992	45.005	147.6		
COMBUSTOR	0	18	11	5														
44.310	118.171	2828	617.9	(744)	1.2983	28.954	2511											
44.310	16.947	1772	315.7	(445)	1.3346	28.954	2015	1.929	3888	1.936	0.69657	13.500	0.0757	1960	42.093	145.2		

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	NORTN	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	5														
44.800	109.287	2816	614.1	(741)	1.2967	28.954	2506											
44.800	17.163	1804	324.5	(453)	1.3333	28.954	2033											
								1.873	3807	1.940	0.67846	13.500	0.0777	1939	40.139	143.6		
COMBUSTOR	0	20	13	4														
46.260	95.818	2780	603.5	(730)	1.2998	28.954	2491											
46.260	16.604	1824	329.9	(459)	1.3325	28.954	2043	1.811	3700	1.945	0.63112	13.500	0.0835	1908	36.290	141.3		
COMBUSTOR	0	21	14	4														
46.396	95.427	2777	602.6	(729)	1.2999	28.954	2490											
46.396	16.511	1821	329.1	(458)	1.3326	28.954	2041	1.812	3699	1.945	0.62843	13.500	0.0839	1907	36.127	141.2		
COMBUSTOR	0	22	15	4														
47.111	92.074	2761	597.8	(725)	1.3004	28.954	2483											
47.111	15.451	1796	322.2	(451)	1.3336	28.954	2028	1.831	3714	1.946	0.59866	13.500	0.0880	1907	34.551	141.2		
COMBUSTOR	0	23	16	5														
47.310	91.132	2757	596.6	(723)	1.3005	28.954	2481											
47.310	15.194	1790	320.6	(449)	1.3338	28.954	2025	1.835	3716	1.946	0.59096	13.500	0.0892	1906	34.129	141.2		
COMBUSTOR	0	24	17	4														
48.110	85.948	2740	591.7	(719)	1.3011	28.954	2474											
48.110	13.417	1749	309.4	(438)	1.3356	28.954	2003	1.876	3758	1.949	0.54009	13.500	0.0976	1912	31.545	141.7		
COMBUSTOR	0	25	18	4														
49.636	76.744	2711	582.9	(710)	1.3020	28.954	2462											
49.636	9.118	1613	272.5	(401)	1.3420	28.954	1928	2.044	3941	1.953	0.41735	13.500	0.1263	1949	25.562	144.3		
COMBUSTOR	0	26	19	4														
51.086	71.743	2686	575.7	(703)	1.3028	28.954	2451											
51.086	6.629	1497	241.5	(370)	1.3481	28.954	1862	2.196	4089	1.955	0.33917	13.500	0.1554	1980	21.553	146.6		
COMBUSTOR	0	27	20	3														
51.617	70.659	2679	573.5	(701)	1.3030	28.954	2448											
51.617	5.965	1458	231.1	(360)	1.3503	28.954	1839	2.251	4139	1.955	0.31721	13.500	0.1662	1991	20.403	147.4		
COMBUSTOR	0	28	21	4														
53.026	67.495	2662	568.5	(696)	1.3036	28.954	2441											
53.026	4.683	1376	209.4	(338)	1.3552	28.954	1789	2.369	4239	1.957	0.27035	13.500	0.1950	2012	17.809	149.1		
COMBUSTOR	0	29	22	4														
55.126	62.644	2641	562.5	(690)	1.3042	28.954	2432											
55.126	3.521	1290	187.2	(316)	1.3604	28.954	1736	2.496	4334	1.959	0.22158	13.500	0.2379	2033	14.924	150.6		
COMBUSTOR	0	30	23	4														
55.626	61.836	2637	561.3	(689)	1.3044	28.954	2430											
55.626	3.313	1272	182.4	(311)	1.3615	28.954	1724	2.525	4355	1.960	0.21253	13.500	0.2480	2038	14.383	150.9		
COMBUSTOR	0	31	24	4														
55.760	61.656	2636	561.0	(688)	1.3044	28.954	2430											
55.760	3.260	1267	181.1	(310)	1.3618	28.954	1721	2.533	4360	1.960	0.21024	13.500	0.2507	2039	14.246	151.0		
COMBUSTOR	0	32	25	3														
56.376	59.353	2631	559.6	(687)	1.3046	28.954	2428											
56.376	2.201	1150	151.0	(280)	1.3692	28.954	1644	2.750	4522	1.962	0.16220	13.500	0.3250	2080	11.397	154.1		
COMBUSTOR	0	33	26	4														
57.136	59.739	2626	557.9	(685)	1.3048	28.954	2425											
57.136	2.037	1121	143.7	(273)	1.3710	28.954	1624											
								2.802	4552	1.961	0.15498	13.500	0.3401	2088	10.965	154.6		
COMBUSTOR	0	34	27	2														
58.561	60.178	2616	555.1	(682)	1.3051	28.954	2421											
58.561	1.787	1075	132.1	(261)	1.3739	28.954	1593	2.889	4600	1.959	0.14325	13.500	0.3679	2099	10.241	155.5		
COMBUSTOR	0	35	28	3														
58.617	60.190	2616	555.0	(682)	1.3051	28.954	2421											
58.617	1.779	1074	131.8	(261)	1.3740	28.954	1592	2.892	4602	1.959	0.14287	13.500	0.3689	2099	10.218	155.5		
COMBUSTOR	0	36	29	3														
58.757	60.145	2615	554.7	(682)	1.3051	28.954	2421											
58.757	1.759	1070	130.9	(260)	1.3742	28.954	1589	2.898	4605	1.959	0.14184	13.500	0.3716	2100	10.152	155.5		
COMBUSTOR	0	37	30	3														
58.836	61.047	2614	554.6	(682)	1.3051	28.954	2421											
58.836	1.775	1068	130.4	(259)	1.3744	28.954	1588	2.902	4607	1.958	0.14146	13.500	0.3674	2100	10.271	155.6		

READING = 0061 BLOCK = 146 TTPF = 231.062 MACH 6.0 PT = 745.999 TT = 2984.8 PAGE 3

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	36	31	3														
59.117	61.547	2613	554.1(	682)	1.3052	28.954	2420											
59.117	1.758	1062	128.9(	258)	1.3747	28.954	1584	2.915	4613	1.957	0.14304	13.500	0.3685	2101	10.253	155.7		
COMBUSTOR	0	39	32	3														
59.342	61.875	2612	553.7(	681)	1.3052	28.954	2419											
59.342	1.745	1058	127.8(	257)	1.3750	28.954	1581	2.921	4616	1.957	0.14269	13.500	0.3694	2102	10.237	155.7		
COMBUSTOR	0	40	33	4														
60.066	61.981	2608	552.6(	680)	1.3053	28.954	2418											
60.066	1.699	1048	125.3(	254)	1.3756	28.954	1573	2.939	4624	1.956	0.14046	13.500	0.3753	2104	10.093	155.8		
COMBUSTOR	0	41	34	4														
61.086	62.047	2603	551.3(	679)	1.3055	28.954	2416											
61.086	1.678	1042	123.8(	253)	1.3760	28.954	1569	2.947	4625	1.956	0.13956	13.500	0.3777	2103	10.030	155.8		
COMBUSTOR	0	42	35	3														
63.096	62.725	2595	549.0(	676)	1.3057	28.954	2412											
63.096	1.754	1048	125.5(	254)	1.3756	28.954	1573	2.927	4605	1.954	0.14441	13.500	0.3650	2096	10.334	155.3		
COMBUSTOR	0	43	36	3														
64.516	63.232	2590	547.4(	675)	1.3059	28.954	2410											
64.516	1.817	1053	126.6(	255)	1.3753	28.954	1577	2.910	4589	1.953	0.14833	13.500	0.3553	2091	10.578	154.9		
COMBUSTOR	0	44	37	4														
66.980	58.146	2580	544.5(	672)	1.3062	28.954	2406											
66.980	1.745	1061	128.6(	257)	1.3748	28.954	1583	2.882	4562	1.958	0.14060	13.500	0.3749	2082	9.968	154.2		
COMBUSTOR	0	45	38	5														
67.356	53.834	2579	544.1(	672)	1.3063	28.954	2405											
67.356	1.625	1062	128.8(	258)	1.3747	28.954	1583	2.879	4558	1.963	0.13071	13.500	0.4032	2081	9.259	154.1		
NOZZLE AE		46	39	5														
89.592	53.834	2579	544.1(	672)	1.3063	28.954	2405											
89.592	0.153	547	2.5(	131)	1.3984	28.953	1146											
								4.542	5206	1.963	0.02721	13.500	1.9372	2260	2.201	167.4		
NOZZLE P0		47	40	5														
89.592	53.834	2579	544.1(	672)	1.3063	28.954	2405											
89.592	0.387	713	42.5(	171)	1.3936	28.954	1306	3.837	5010	1.963	0.05100	13.500	1.0335	2205	3.971	163.3		
FICTIVE COMBUSTR		67	60	0														
67.356	215.919	2579	544.1(	672)	1.3063	28.954	2405											
67.356	0.387	480	*13.6(	115)	1.3991	28.954	1074	4.919	5283	1.867	0.07982	13.500	0.6604	2282	6.553	169.0		
FICTIVE NOZZLE		68	61	0														
89.592	1842.284	2565	540.1(	668)	1.3066	28.955	2399											
89.592	0.033	130	*98.3(	31)	1.3874	28.954	55710	.148	5652	1.719	0.02721	13.500	1.9371	2388	2.390	176.9		

READING = 0061 BLOCK = 146 TIME = 231.062 MACH 6.0 PT = 745.999 TT = 2984.8 PAGE 4

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.055E 00	0.000	-4.648E-01	0.000	0.000	0.000	2.470E-02	2.725E 00	1.414E-03	0.000	0.000
1.836E 01	1.055E 00	0.000	-3.515E 01	0.000	0.000	0.000	1.634E 02	2.725E 00	1.414E-03	0.000	0.000
2.070E 01	2.240E 00	0.000	-1.687E 02	0.000	0.000	0.000	5.053E 02	5.786E 00	3.003E-03	0.000	0.000
3.508E 01	3.955E 00	0.000	-3.695E 02	0.000	0.000	0.000	6.804E 02	1.022E 01	5.302E-03	0.000	0.000
3.555E 01	4.040E 00	0.000	-4.059E 02	0.000	0.000	0.000	7.013E 02	1.044E 01	5.416E-03	0.000	0.000
3.606E 01	3.965E 00	0.000	-4.465E 02	-2.163E 02	-2.163E 02	0.000	7.246E 02	1.024E 01	5.315E-03	0.000	0.000
3.648E 01	4.284E 00	0.000	-4.818E 02	-2.216E 02	-2.216E 02	0.000	7.443E 02	1.107E 01	5.743E-03	0.000	0.000
3.701E 01	4.240E 00	0.000	-5.290E 02	-2.284E 02	-2.284E 02	0.000	7.696E 02	1.095E 01	5.684E-03	0.000	0.000
3.749E 01	4.071E 00	5.659E 00	-6.295E 02	-2.350E 02	-2.350E 02	0.000	7.934E 02	1.052E 01	5.458E-03	1.462E 01	7.586E-03
3.750E 01	4.069E 00	5.707E 00	-6.296E 02	-2.351E 02	-2.351E 02	0.000	7.937E 02	1.051E 01	5.455E-03	1.474E 01	7.650E-03
3.803E 01	3.885E 00	9.935E 00	-6.252E 02	-2.427E 02	-2.427E 02	0.000	8.502E 02	1.004E 01	5.208E-03	2.566E 01	1.332E-02
3.817E 01	5.029E 00	1.102E 01	-6.203E 02	-2.448E 02	-2.448E 02	0.000	8.650E 02	1.299E 01	6.742E-03	2.848E 01	1.478E-02
3.875E 01	9.921E 00	1.378E 01	-6.123E 02	-2.292E 02	-2.546E 02	2.544E 01	9.294E 02	2.563E 01	1.330E-02	3.559E 01	1.847E-02
3.901E 01	1.210E 01	1.500E 01	-6.118E 02	-2.320E 02	-2.595E 02	2.750E 01	9.586E 02	3.125E 01	1.622E-02	3.676E 01	2.011E-02
3.958E 01	1.615E 01	1.732E 01	-6.204E 02	-2.796E 02	-2.699E 02	-9.713E 00	1.014E 03	4.172E 01	2.165E-02	4.473E 01	2.321E-02
3.963E 01	1.620E 01	1.791E 01	-6.223E 02	-2.871E 02	-2.728E 02	-1.431E 01	1.029E 03	4.185E 01	2.172E-02	4.627E 01	2.401E-02
4.000E 01	1.636E 01	1.793E 01	-6.254E 02	-3.098E 02	-2.820E 02	-2.778E 01	1.072E 03	4.225E 01	2.193E-02	4.630E 01	2.403E-02
4.040E 01	1.601E 01	1.794E 01	-6.266E 02	-3.349E 02	-2.927E 02	-4.215E 01	1.118E 03	4.137E 01	2.147E-02	4.634E 01	2.405E-02
4.041E 01	1.601E 01	1.794E 01	-6.265E 02	-3.355E 02	-2.930E 02	-4.251E 01	1.119E 03	4.134E 01	2.146E-02	4.634E 01	2.405E-02
4.065E 01	1.580E 01	1.795E 01	-6.250E 02	-3.507E 02	-2.997E 02	-5.098E 01	1.147E 03	4.082E 01	2.119E-02	4.637E 01	2.406E-02
4.112E 01	1.540E 01	1.830E 01	-6.169E 02	-3.815E 02	-3.138E 02	-6.775E 01	1.202E 03	3.979E 01	2.065E-02	4.727E 01	2.453E-02
4.130E 01	1.507E 01	1.921E 01	-6.093E 02	-4.075E 02	-3.262E 02	-8.138E 01	1.247E 03	3.894E 01	2.021E-02	4.962E 01	2.575E-02
4.163E 01	1.507E 01	1.951E 01	-6.004E 02	-4.163E 02	-3.305E 02	-8.586E 01	1.262E 03	3.894E 01	2.021E-02	5.040E 01	2.616E-02
4.212E 01	1.507E 01	3.825E 00	-6.014E 02	-4.508E 02	-3.479E 02	-1.030E 02	1.320E 03	3.894E 01	2.021E-02	9.880E 00	5.127E-03
4.246E 01	1.507E 01	3.756E 00	-6.162E 02	-4.750E 02	-3.603E 02	-1.147E 02	1.360E 03	3.894E 01	2.021E-02	9.703E 00	5.035E-03
4.262E 01	1.500E 01	3.725E 00	-6.225E 02	-4.859E 02	-3.659E 02	-1.199E 02	1.379E 03	3.874E 01	2.010E-02	9.622E 00	4.993E-03
4.361E 01	1.450E 01	2.933E 00	-6.594E 02	-5.668E 02	-4.000E 02	-1.669E 02	1.498E 03	3.746E 01	1.944E-02	7.576E 00	3.932E-03
4.368E 01	1.447E 01	2.881E 00	-6.618E 02	-5.729E 02	-4.021E 02	-1.708E 02	1.506E 03	3.738E 01	1.940E-02	7.442E 00	3.862E-03
4.431E 01	1.416E 01	4.730E 00	-6.849E 02	-6.359E 02	-4.224E 02	-2.135E 02	1.582E 03	3.657E 01	1.898E-02	1.222E 01	6.340E-03
4.480E 01	1.391E 01	6.160E 00	-6.991E 02	-6.867E 02	-4.374E 02	-2.493E 02	1.641E 03	3.594E 01	1.865E-02	1.591E 01	8.257E-03
4.626E 01	1.205E 01	1.042E 01	-7.107E 02	-8.304E 02	-4.796E 02	-3.508E 02	1.819E 03	3.112E 01	1.615E-02	2.692E 01	1.397E-02
4.640E 01	1.187E 01	1.082E 01	-7.097E 02	-8.432E 02	-4.834E 02	-3.598E 02	1.836E 03	3.067E 01	1.592E-02	2.795E 01	1.450E-02
4.711E 01	1.096E 01	9.755E 00	-7.009E 02	-9.073E 02	-5.026E 02	-4.046E 02	1.924E 03	2.831E 01	1.469E-02	2.520E 01	1.308E-02
4.731E 01	1.071E 01	9.460E 00	-6.988E 02	-9.242E 02	-5.078E 02	-4.163E 02	1.949E 03	2.765E 01	1.435E-02	2.444E 01	1.268E-02
4.811E 01	1.166E 01	8.270E 00	-6.835E 02	-9.893E 02	-5.282E 02	-4.612E 02	2.047E 03	3.012E 01	1.563E-02	2.136E 01	1.109E-02
4.964E 01	6.000E 00	6.000E 00	-6.320E 02	-1.108E 03	-5.643E 02	-5.436E 02	2.237E 03	1.550E 01	8.043E-03	1.550E 01	8.043E-03
5.109E 01	5.384E 00	5.384E 00	-5.895E 02	-1.206E 03	-5.952E 02	-6.109E 02	2.418E 03	1.391E 01	7.217E-03	1.391E 01	7.217E-03
5.162E 01	5.158E 00	5.158E 00	-5.749E 02	-1.236E 03	-6.058E 02	-6.298E 02	2.485E 03	1.332E 01	6.915E-03	1.332E 01	6.915E-03
5.303E 01	3.144E 00	3.144E 00	-5.442E 02	-1.303E 03	-6.317E 02	-6.715E 02	2.662E 03	8.120E 00	4.214E-03	8.120E 00	4.214E-03
5.513E 01	2.587E 00	2.587E 00	-5.127E 02	-1.383E 03	-6.647E 02	-7.185E 02	2.928E 03	6.684E 00	3.469E-03	6.684E 00	3.469E-03
5.563E 01	2.717E 00	2.717E 00	-5.058E 02	-1.400E 03	-6.716E 02	-7.279E 02	2.992E 03	7.017E 00	3.642E-03	7.017E 00	3.642E-03
5.576E 01	2.659E 00	2.659E 00	-5.039E 02	-1.404E 03	-6.734E 02	-7.304E 02	3.009E 03	6.868E 00	3.564E-03	6.868E 00	3.564E-03
5.638E 01	2.392E 00	2.392E 00	-4.612E 02	-1.423E 03	-6.817E 02	-7.416E 02	3.051E 03	6.178E 00	3.206E-03	6.178E 00	3.206E-03
5.714E 01	1.316E 00	2.062E 00	-4.525E 02	-1.446E 03	-6.917E 02	-7.545E 02	3.109E 03	3.400E 00	1.764E-03	5.328E 00	2.765E-03
5.856E 01	1.793E 00	1.793E 00	-4.388E 02	-1.484E 03	-7.081E 02	-7.759E 02	3.217E 03	4.630E 00	2.403E-03	4.630E 00	2.403E-03
5.862E 01	1.687E 00	1.782E 00	-4.383E 02	-1.485E 03	-7.086E 02	-7.767E 02	3.224E 03	4.359E 00	2.262E-03	4.603E 00	2.389E-03
5.876E 01	1.687E 00	1.756E 00	-4.372E 02	-1.489E 03	-7.100E 02	-7.786E 02	3.241E 03	4.359E 00	2.262E-03	4.535E 00	2.353E-03
5.884E 01	1.741E 00	1.741E 00	-4.365E 02	-1.491E 03	-7.108E 02	-7.797E 02	3.252E 03	4.496E 00	2.333E-03	4.496E 00	2.333E-03
5.912E 01	1.687E 00	1.687E 00	-4.342E 02	-1.497E 03	-7.136E 02	-7.833E 02	3.287E 03	4.359E 00	2.262E-03	4.359E 00	2.262E-03
5.934E 01	1.601E 00	1.601E 00	-4.326E 02	-1.502E 03	-7.156E 02	-7.862E 02	3.316E 03	4.136E 00	2.146E-03	4.136E 00	2.146E-03
6.007E 01	1.325E 00	1.325E 00	-4.286E 02	-1.517E 03	-7.218E 02	-7.952E 02	3.409E 03	3.423E 00	1.776E-03	3.423E 00	1.776E-03
6.109E 01	1.275E 00	1.275E 00	-4.256E 02	-1.535E 03	-7.291E 02	-8.062E 02	3.539E 03	3.293E 00	1.709E-03	3.293E 00	1.709E-03
6.310E 01	1.525E 00	1.525E 00	-4.253E 02	-1.566E 03	-7.397E 02	-8.263E 02	3.797E 03	3.939E 00	2.044E-03	3.939E 00	2.044E-03
6.452E 01	1.781E 00	1.781E 00	-4.253E 02	-1.587E 03	-7.457E 02	-8.414E 02	3.980E 03	4.601E 00	2.388E-03	4.601E 00	2.388E-03
6.698E 01	2.536E 00	2.536E 00	-4.253E 02	-1.626E 03	-7.574E 02	-8.689E 02	4.296E 03	6.551E 00	3.400E-03	6.551E 00	3.400E-03
6.736E 01	2.137E 00	2.651E 00	-4.253E 02	-1.632E 03	-7.592E 02	-8.732E 02	4.344E 03	5.521E 00	2.865E-03	6.649E 00	3.554E-03

READING = 0061 BLOCK = 146 TIME = 251.062 MACH 6.0 PT = 745.999 TT = 2984.8

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CANALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OB/PT0
6.740E 01	2.137E 00	2.664E 00	-4.253E 02	-1.653E 03	-7.594E 02	-8.736E 02	4.349E 03	5.521E 00	2.865E-03	6.880E 00	3.571E-03
6.760E 01	2.166E 00	2.725E 00	-4.253E 02	-1.656E 03	-7.604E 02	-8.758E 02	4.375E 03	5.594E 00	2.903E-03	7.039E 00	3.653E-03
6.926E 01	2.400E 00	1.500E 00	-4.011E 02	-1.659E 03	-7.675E 02	-8.915E 02	4.591E 03	6.199E 00	3.217E-03	5.875E 00	2.011E-03
6.993E 01	1.914E 00	1.200E 00	-3.655E 02	-1.666E 03	-7.698E 02	-8.967E 02	4.672E 03	4.943E 00	2.565E-03	3.100E 00	1.609E-03
7.070E 01	1.355E 00	1.004E 00	-3.262E 02	-1.675E 03	-7.722E 02	-9.031E 02	4.767E 03	3.500E 00	1.816E-03	2.592E 00	1.345E-03
7.142E 01	1.073E 00	8.200E-01	-2.978E 02	-1.685E 03	-7.741E 02	-9.106E 02	4.855E 03	2.773E 00	1.439E-03	2.118E 00	1.099E-03
7.203E 01	8.350E-01	8.943E-01	-2.778E 02	-1.694E 03	-7.755E 02	-9.185E 02	4.929E 03	2.157E 00	1.119E-03	2.310E 00	1.199E-03
7.298E 01	7.455E-01	1.010E 00	-2.501E 02	-1.712E 03	-7.773E 02	-9.345E 02	5.043E 03	1.926E 00	9.993E-04	2.609E 00	1.354E-03
7.341E 01	7.050E-01	9.266E-01	-2.383E 02	-1.720E 03	-7.781E 02	-9.422E 02	5.096E 03	1.821E 00	9.450E-04	2.394E 00	1.242E-03
7.494E 01	7.596E-01	6.300E-01	-2.021E 02	-1.742E 03	-7.805E 02	-9.620E 02	5.280E 03	1.962E 00	1.018E-03	1.627E 00	8.445E-04
7.509E 01	7.650E-01	5.733E-01	-1.990E 02	-1.744E 03	-7.808E 02	-9.634E 02	5.297E 03	1.976E 00	1.025E-03	1.481E 00	7.685E-04
7.584E 01	6.947E-01	2.900E-01	-1.806E 02	-1.754E 03	-7.819E 02	-9.716E 02	5.382E 03	1.794E 00	9.312E-04	7.491E-01	3.887E-04
7.584E 01	6.943E-01	2.885E-01	-1.800E 02	-1.754E 03	-7.819E 02	-9.717E 02	5.382E 03	1.793E 00	9.307E-04	7.452E-01	3.867E-04
7.717E 01	5.700E-01	0.000	-1.666E 02	-1.775E 03	-7.839E 02	-9.889E 02	5.434E 03	1.472E 00	7.641E-04	0.000	0.000
8.002E 01	6.250E-01	0.000	-1.427E 02	-1.740E 03	-7.880E 02	-9.523E 02	5.532E 03	1.614E 00	8.378E-04	0.000	0.000
8.392E 01	4.750E-01	0.000	-1.192E 02	-1.745E 03	-7.932E 02	-9.521E 02	5.637E 03	1.227E 00	6.367E-04	0.000	0.000
8.673E 01	4.650E-01	0.000	-1.088E 02	-1.676E 03	-7.985E 02	-8.772E 02	5.691E 03	1.201E 00	6.233E-04	0.000	0.000
8.959E 01	5.100E-01	0.000	-9.703E 01	-1.685E 03	-8.083E 02	-8.772E 02	5.714E 03	1.317E 00	6.836E-04	0.000	0.000
8.959E 01	5.101E-01	0.000	-9.703E 01	-1.685E 03	-8.083E 02	-8.772E 02	5.714E 03	1.318E 00	6.838E-04	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.083E 02	1.083E 02	2.609E-03	5.016E-02
4.041E 01	1.853E-01	1.085E 02	2.609E-03	5.015E-02
4.065E 01	4.383E 00	1.129E 02	2.613E-03	5.052E-02
4.112E 01	8.739E 00	1.216E 02	2.608E-03	5.014E-02
4.150E 01	7.083E 00	1.287E 02	2.591E-03	4.895E-02
4.163E 01	2.314E 00	1.310E 02	2.582E-03	4.854E-02
4.212E 01	8.785E 00	1.398E 02	2.599E-03	4.691E-02
4.246E 01	5.961E 00	1.457E 02	2.644E-03	4.635E-02
4.262E 01	2.651E 00	1.484E 02	2.663E-03	4.598E-02
4.361E 01	1.587E 01	1.643E 02	2.765E-03	4.353E-02
4.368E 01	9.800E-01	1.652E 02	2.771E-03	4.328E-02
4.431E 01	9.303E 00	1.745E 02	2.826E-03	4.285E-02
4.480E 01	6.929E 00	1.815E 02	2.862E-03	4.258E-02
4.626E 01	1.960E 01	2.011E 02	2.902E-03	4.003E-02
4.640E 01	1.761E 00	2.028E 02	2.901E-03	3.982E-02
4.711E 01	8.984E 00	2.118E 02	2.890E-03	3.771E-02
4.731E 01	2.434E 00	2.143E 02	2.887E-03	3.717E-02
4.811E 01	9.324E 00	2.236E 02	2.862E-03	3.355E-02
4.964E 01	1.520E 01	2.388E 02	2.753E-03	2.461E-02
5.109E 01	1.154E 01	2.503E 02	2.657E-03	1.904E-02
5.182E 01	3.681E 00	2.540E 02	2.622E-03	1.750E-02
5.303E 01	8.769E 00	2.628E 02	2.548E-03	1.435E-02
5.513E 01	1.093E 01	2.737E 02	2.469E-03	1.127E-02
5.563E 01	2.297E 00	2.760E 02	2.451E-03	1.071E-02
5.576E 01	5.971E-01	2.766E 02	2.446E-03	1.056E-02
5.638E 01	1.259E 00	2.779E 02	2.306E-03	7.582E-03
5.714E 01	1.494E 00	2.793E 02	2.275E-03	7.120E-03
5.856E 01	2.570E 00	2.819E 02	2.226E-03	6.405E-03
5.862E 01	1.604E-01	2.821E 02	2.225E-03	6.384E-03
5.876E 01	4.024E-01	2.825E 02	2.221E-03	6.326E-03
5.884E 01	2.318E-01	2.827E 02	2.214E-03	6.373E-03
5.912E 01	8.085E-01	2.835E 02	2.204E-03	6.321E-03
5.934E 01	6.499E-01	2.842E 02	2.196E-03	6.280E-03
6.007E 01	2.061E 00	2.862E 02	2.182E-03	6.130E-03
6.109E 01	2.864E 00	2.891E 02	2.173E-03	6.056E-03
6.310E 01	5.703E 00	2.948E 02	2.171E-03	6.267E-03
6.452E 01	4.135E 00	2.989E 02	2.170E-03	6.440E-03
6.698E 01	7.099E 00	3.060E 02	2.202E-03	6.201E-03
6.736E 01	1.028E 00	3.071E 02	2.230E-03	5.844E-03
6.740E 01	1.192E-01	3.072E 02	2.260E-03	7.666E-03
6.760E 01	6.656E-01	3.078E 02	2.263E-03	7.769E-03
6.926E 01	5.257E 00	3.131E 02	2.216E-03	6.545E-03
6.993E 01	1.728E 00	3.148E 02	2.173E-03	5.523E-03
7.070E 01	1.706E 00	3.165E 02	2.120E-03	4.472E-03
7.142E 01	1.341E 00	3.179E 02	2.078E-03	3.782E-03
7.203E 01	1.016E 00	3.189E 02	2.059E-03	3.525E-03
7.298E 01	1.527E 00	3.204E 02	2.056E-03	3.556E-03
7.341E 01	6.800E-01	3.211E 02	2.043E-03	3.363E-03
7.494E 01	2.226E 00	3.233E 02	2.013E-03	2.972E-03
7.509E 01	1.943E-01	3.235E 02	2.006E-03	2.868E-03
7.584E 01	8.492E-01	3.244E 02	1.954E-03	2.285E-03
7.584E 01	1.456E-03	3.244E 02	1.953E-03	2.282E-03
7.717E 01	4.903E-01	3.249E 02	1.971E-03	2.546E-03
8.002E 01	1.003E 00	3.259E 02	1.975E-03	2.714E-03
8.392E 01	1.003E 00	3.269E 02	1.917E-03	2.187E-03
8.673E 01	4.665E-01	3.273E 02	1.904E-03	2.141E-03

X	DDRAG	CDRAG	CF	HC
8.959E 01	1.979E-01	3.275E 02	1.910E-03	2.285E-03
8.959E 01	0.000	3.275E 02	1.910E-03	2.286E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=431.	(LBF)
MEASURED THRUST	=818.	(LBF)
CALCULATED SPECIFIC IMPULSE	=431.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=818.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.1729	
MEASURED THRUST COEFFICIENT	=.3281	

REGENERATIVE=COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	75164.	(LBF)
NET THRUST	15147.	(LBF)
SPECIFIC IMPULSE	1696.	(LBF=SEC/LBM)
THRUST COEFFICIENT	0.4130	

MOMENTUM AND FORCES

INLET FRICTION DRAG	108.3	(LBF)
INLET MOMENTUM CHANGE	=734.9	(LBF)
COMBUSTOR FRICTION DRAG	198.8	(LBF)
COMBUSTOR STRUT DRAG	6.52	(LBF)
COMBUSTOR MOMENTUM CHANGE	=4.	(LBF)
NOZZLE FRICTION DRAG	20.47	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	308.	(LBF)
NOZZLE PRESSURE INTEGRAL	328.	(LBF)
EXTERNAL FRICTION DRAG	58.49	(LBF)
EXTERNAL PRESSURE INTEGRAL	=1148.	(LBF)
TOTAL EXTERNAL DRAG	=1206.	(LBF)
TOTAL STRUT DRAG	6.52	(LBF)
CAVITY FORCE	=1097.	(LBF)
CALCULATED LOAD CELL FORCE	=2734.	(LBF)
MEASURED LOAD CELL FORCE	=3120.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	2.6165	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	37.500	(IN)
NOZZLE SHROUD TRAILING EDGE	75.840	(IN)
NOZZLE PLUG TRAILING EDGE	89.592	(IN)
STRUT LEADING EDGE	58.757	(IN)
STRUT TRAILING EDGE	67.356	(IN)
COMBUSTOR EXIT	67.356	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.4970	
ADDITIVE DRAG COEFFICIENT	0.0972	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1489	
DELTA PT2	0.1165	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.2894	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1512	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8764	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9004	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9121	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8731	
ENTHALPY AT P0 = SUPERSONIC	4.52	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	31.70	(BTU/LBM)

COMBUSTOR

FUEL=AIR RATIO	0.0000
EQUIVALENCE RATIO	0.000
COMBUSTOR EFFICIENCY	0.000
TOTAL PRESSURE RATIO	0.2493
COMBUSTOR EFFECTIVENESS	0.6076
INJECTOR DISCHARGE COEFFICIENTS	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	1.0568
NOZZLE COEFFICIENT = CT	0.9962
PROCESS EFFICIENCY	1.3163
KINETIC ENERGY EFFICIENCY	1.0861

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	43.601	
1C	44.300	
2A	51.076	
2C	46.250	
3A	56.367	
3B	58.551	
4	47.101	

Reading 61

t = 243.66 sec.

Fuel equivalence ratios, ϕ, were higher than planned because the change in captured mass flow with inlet spike position change was not accounted for in the pre-test selection of the fuel regulating pressures.

03/04/75

READING = 0061 BLOCK = 160 TIME = 243.662 MACH 6.0 PT = 745.249 TT = 2992.5

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	M/A	K	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	745.249	2993	667.3(792)	1.2930	28.955	2578											
0.000	0.388	406	-31.5(97)	1.3989	28.954	987	5.991	5914	1.827	0.10598	13.437	0.4950	2519	9.739	187.5		
SPIKE TIP NS		2	0 6														
0.600	19.087	2992	667.3(792)	1.2929	28.954	2578											
0.600	17.469	2933	649.3(775)	1.2948	28.954	2554	0.372	950	2.078	0.10598	13.437	0.4950	2612	1.564	194.4		
WIND TUNNEL		3	0 0														
0.000	745.249	2993	667.3(792)	1.2930	28.955	2578											
0.000	0.413	413	-29.8(99)	1.3989	28.954	996	5.930	5906	1.827	0.11074	14.041	0.4950	2630	10.164	187.3		
SPIKE TIP NS		4	0 0														
0.600	19.087	2992	667.3(792)	1.2929	28.954	2578											
0.600	17.301	2926	647.4(773)	1.2950	28.954	2551	0.392	1000	2.078	0.11074	14.041	0.4950	2630	1.720	187.3		
INLET THROAT		5	0 6														
40.400	252.124	2873	631.4(757)	1.2968	28.954	2529											
40.400	15.582	1455	230.3(359)	1.3505	28.954	1837	2.438	4480	1.889	0.89861	13.437	0.0584	2104	62.557	156.6		
INLET UPNRSK		6	0 3														
40.400	252.124	2873	631.4(757)	1.2968	28.954	2529											
40.400	13.361	1398	215.3(344)	1.3538	28.954	1803	2.531	4563	1.889	0.81692	13.437	0.0642	2125	57.927	158.2		
INLET DNNRSK		7	0 4														
40.400	114.536	2873	631.4(757)	1.2968	28.954	2529											
40.400	97.870	2771	600.9(728)	1.3001	28.954	2487	0.496	1235	1.943	0.81692	13.437	0.0642	2125	15.673	158.2		
COMBUSTOR	0	8	1 4														
40.410	146.572	3256	634.0(916)	1.2798	27.740	2733											
40.410	27.804	2224	310.8(599)	1.3147	27.742	2289	1.757	4022	2.052	0.90287	13.503	0.0584	2104	56.434	155.6	0.15	0.61
COMBUSTOR	0	9	2 4														
40.650	133.893	3415	632.3(963)	1.2719	27.933	2781											
40.650	32.518	2489	336.9(676)	1.3034	27.936	2403	1.600	3844	2.067	0.90812	13.503	0.0581	2097	54.251	155.3	0.15	0.82
COMBUSTOR	0	10	3 202														
41.120	122.675	3545	628.6(1002)	1.2650	28.102	2817											
41.120	42.279	2812	389.9(772)	1.2906	28.108	2534	1.364	3456	2.077	0.90361	13.503	0.0583	2082	46.527	154.2	0.15	1.00
COMBUSTOR	0	11	4 200														
41.500	117.751	3536	625.5(999)	1.2653	28.102	2813											
41.500	50.889	2950	433.5(815)	1.2858	28.108	2590	1.197	3099	2.079	0.88960	13.503	0.0593	2073	42.850	153.5	0.15	1.00
COMBUSTOR	0	12	5 200														
41.630	116.201	3533	624.5(998)	1.2654	28.102	2812											
41.630	53.205	2985	444.8(826)	1.2846	28.108	2604	1.151	2999	2.080	0.88278	13.503	0.0597	2072	41.137	153.5	0.15	1.00
COMBUSTOR	0	13	6 21														
42.120	101.580	3520	620.4(994)	1.2656	28.102	2808											
42.120	33.944	2772	377.3(760)	1.2919	28.108	2517	1.386	3487	2.088	0.84996	13.503	0.0620	2003	46.059	148.3	0.15	1.00
COMBUSTOR	0	14	7 21														
42.460	85.710	3511	617.5(991)	1.2657	28.102	2804											
42.460	30.493	2919	423.7(805)	1.2868	28.107	2578	1.208	3113	2.100	0.82189	13.503	0.0641	1906	39.767	141.2	0.15	1.00
COMBUSTOR	0	15	8 21														
42.620	78.953	3507	616.2(990)	1.2657	28.102	2803											
42.620	35.124	2944	431.7(813)	1.2859	28.107	2588	1.174	3038	2.105	0.80740	13.503	0.0653	1862	38.115	137.9	0.15	1.00
COMBUSTOR	0	16	9 21														
43.605	57.107	2770	614.6(812)	1.3025	25.820	2636											
43.605	26.441	2308	464.5(664)	1.3180	25.821	2420	1.132	2741	2.178	0.73014	13.568	0.0726	1647	31.097	121.4	0.30	0.11
COMBUSTOR	0	17	10 21														
43.615	59.382	2621	614.5(766)	1.3093	25.670	2578											
43.615	26.353	2155	464.7(618)	1.3251	25.670	2352	1.164	2758	2.161	0.72894	13.568	0.0727	1645	31.011	121.2	0.30	0.02
COMBUSTOR	0	18	11 21														
43.680	58.368	2596	613.7(759)	1.3105	25.648	2568											
43.680	25.789	2131	464.4(610)	1.3262	25.648	2341	1.168	2733	2.159	0.72573	13.568	0.0730	1634	30.820	120.5	0.30	0.00

READING = 0061 BLOCK = .160 TIME = 243.662 MACH 6.0 PI = 745.249 TT = 2992.5

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
44.310	48.201	2568	605.7(750)	1.3114	25.644	2555											
44.310	23.269	2154	472.7(618)	1.3254	25.644	2353	1.096	2579	2.171	0.70005	13.568	0.0757	1539	28.061	113.4	0.30	0.00
COMBUSTOR	0	20	13 21														
44.800	43.278	2547	598.9(743)	1.3121	25.644	2545											
44.800	21.315	2146	470.4(615)	1.3257	25.644	2349	1.080	2536	2.176	0.68342	13.568	0.0775	1493	26.933	110.0	0.30	0.00
COMBUSTOR	0	21	14 21														
46.260	40.045	2974	578.5(874)	1.2914	26.147	2703											
46.260	26.452	2706	489.0(787)	1.3006	26.148	2587	0.818	2116	2.218	0.63566	13.568	0.0833	1457	20.904	107.4	0.30	0.31
COMBUSTOR	0	22	15 21														
46.400	42.943	2552	576.5(743)	1.3110	25.717	2543											
46.400	26.946	2282	489.6(657)	1.3201	25.717	2413	0.864	2086	2.176	0.63115	13.568	0.0839	1459	20.466	107.5	0.30	0.05
COMBUSTOR	0	23	16 21														
47.115	42.101	2461	567.4(715)	1.3148	25.655	2504											
47.115	24.887	2166	473.3(621)	1.3248	25.655	2358	0.920	2171	2.167	0.60439	13.568	0.0876	1474	20.388	108.6	0.30	0.01
COMBUSTOR	0	24	17 21														
47.310	41.809	2444	565.1(710)	1.3155	25.645	2497											
47.310	24.326	2143	469.0(614)	1.3258	25.645	2347	0.934	2193	2.166	0.59441	13.568	0.0891	1480	20.260	109.1	0.30	0.00
COMBUSTOR	0	25	18 21														
48.110	39.165	2416	556.4(701)	1.3165	25.644	2483											
48.110	19.834	2046	439.0(584)	1.3292	25.644	2296	1.055	2424	2.167	0.54327	13.568	0.0975	1517	20.463	111.8	0.30	0.00
COMBUSTOR	0	26	19 21														
49.640	36.049	2368	540.9(685)	1.3181	25.644	2460											
49.640	13.725	1866	383.1(528)	1.3359	25.643	2199	1.278	2810	2.167	0.41946	13.568	0.1263	1629	18.316	120.1	0.30	0.00
COMBUSTOR	0	27	20 21														
51.090	32.531	2418	528.5(700)	1.3153	25.732	2479											
51.090	9.627	1792	331.7(504)	1.3379	25.732	2152	1.458	3137	2.180	0.34088	13.568	0.1554	1706	16.620	125.8	0.30	0.06
COMBUSTOR	0	28	21 21														
51.620	33.163	2331	524.9(674)	1.3191	25.657	2441											
51.620	8.129	1642	310.4(460)	1.3493	25.657	2069	1.584	3276	2.168	0.31880	13.568	0.1662	1727	16.230	127.3	0.30	0.01
COMBUSTOR	0	29	22 21														
53.030	32.623	2294	516.7(662)	1.3206	25.646	2423											
53.030	6.631	1538	282.8(428)	1.3505	25.646	2006	1.705	3421	2.164	0.27171	13.568	0.1950	1774	14.445	130.7	0.30	0.00
COMBUSTOR	0	30	23 21														
55.130	31.845	2261	506.6(651)	1.3217	25.644	2407											
55.130	4.729	1394	240.7(386)	1.3582	25.644	1916	1.904	3647	2.162	0.22270	13.568	0.2379	1826	12.623	134.6	0.30	0.00
COMBUSTOR	0	31	24 21														
55.630	31.852	2254	504.6(649)	1.3219	25.644	2403											
55.630	4.696	1387	238.8(384)	1.3586	25.643	1911	1.908	3647	2.161	0.21360	13.568	0.2480	1836	12.105	135.3	0.30	0.00
COMBUSTOR	0	32	25 21														
55.760	31.135	2273	504.0(655)	1.3210	25.664	2412											
55.760	4.608	1402	236.5(388)	1.3576	25.664	1920	1.905	3658	2.165	0.21137	13.568	0.2506	1839	12.017	135.5	0.30	0.01
COMBUSTOR	0	33	26 4														
56.380	24.659	2460	501.6(712)	1.3123	25.857	2492											
56.380	4.189	1586	229.5(441)	1.3460	25.857	2026	1.821	3690	2.203	0.16301	13.568	0.3250	1905	9.347	140.4	0.30	0.13
COMBUSTOR	0	34	27 21														
57.140	30.419	2268	498.7(653)	1.3211	25.675	2409											
57.140	2.754	1227	182.1(337)	1.3675	25.675	1802	2.208	3980	2.166	0.15577	13.568	0.3401	1918	9.635	141.4	0.30	0.02
COMBUSTOR	0	35	28 21														
58.565	32.313	2225	494.0(640)	1.3229	25.648	2389											
58.565	2.245	1118	159.5(306)	1.3740	25.648	1726	2.371	4091	2.155	0.14402	13.568	0.3676	1937	9.157	142.7	0.30	0.00
COMBUSTOR	0	36	29 4														
58.620	28.087	2322	493.9(670)	1.3184	25.744	2432											
58.620	2.820	1296	180.2(356)	1.3628	25.744	1847	2.145	3962	2.178	0.14359	13.568	0.3689	1937	8.841	142.8	0.30	0.06
COMBUSTOR	0	37	30 3														
58.760	28.389	2312	493.5(666)	1.3189	25.735	2427											
58.760	2.749	1277	177.6(351)	1.3640	25.734	1834	2.167	3975	2.176	0.14253	13.568	0.3717	1938	8.806	142.9	0.30	0.06

READING = 0061 BLOCK = 160 TIME = 243.662 MACH 6.0 PT = 745.249 TT = 2992.5

	P	T	h	GAMMA	MOLWT	SONV	MACH	VEL	S	M/A	M	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
58.840	26.716	2537	493.2(674)	1.3177	25.761	2438											
58.840	1.969	1202	147.7(329)	1.3682	25.761	1782	2.334	4156	2.183	0.14413	13.568	0.3675	1939	9.314	142.9	0.30	0.07
COMBUSTOR	0	39	32 21														
59.120	31.160	2234	492.5(643)	1.3224	25.661	2392											
59.120	1.687	1049	135.9(286)	1.3778	25.661	1673	2.524	4224	2.159	0.14368	13.566	0.3687	1941	9.432	143.0	0.30	0.01
COMBUSTOR	0	40	33 21														
59.346	32.715	2217	491.9(637)	1.3232	25.646	2385											
59.346	1.783	1042	138.5(284)	1.3783	25.646	1668	2.521	4205	2.153	0.14341	13.568	0.3694	1942	9.372	143.1	0.30	0.00
COMBUSTOR	0	41	34 21														
60.070	34.003	2209	490.3(635)	1.3235	25.644	2381											
60.070	2.087	1072	147.9(293)	1.3766	25.644	1691	2.447	4139	2.149	0.14116	13.568	0.3753	1946	9.080	143.4	0.30	0.00
COMBUSTOR	0	42	35 21														
61.090	34.642	2202	488.0(633)	1.3237	25.644	2377											
61.090	1.912	1037	138.2(283)	1.3785	25.643	1665	2.513	4184	2.147	0.14026	13.568	0.3777	1950	9.120	143.7	0.30	0.00
COMBUSTOR	0	43	36 5														
63.100	26.238	2420	483.7(699)	1.3135	25.873	2472											
63.100	3.150	1424	176.6(393)	1.3544	25.873	1925	2.036	3920	2.192	0.14514	13.568	0.3650	1948	8.841	143.5	0.30	0.14
COMBUSTOR	0	44	37 4														
64.520	29.064	2352	480.9(678)	1.3166	25.813	2442											
64.520	2.969	1321	165.6(363)	1.3608	25.813	1861	2.154	3972	2.177	0.14907	13.568	0.3553	1945	9.203	143.4	0.30	0.11
COMBUSTOR	0	45	38 5														
66.984	17.758	2905	475.5(848)	1.2905	26.402	2657											
66.984	5.394	2202	247.6(623)	1.3150	26.403	2335	1.446	3377	2.261	0.14131	13.568	0.3749	1942	7.415	143.1	0.30	0.47
COMBUSTOR	0	46	39 3														
67.360	16.207	2948	474.6(861)	1.2883	26.451	2672											
67.360	5.263	2273	255.0(645)	1.3120	26.452	2368	1.400	3315	2.271	0.13137	13.568	0.4032	1941	6.767	143.1	0.30	0.50
COMBUSTOR REGEN		47	40 5														
67.360	16.207	3515	671.9(1049)	1.2649	26.442	2891											
67.360	7.263	2955	477.1(863)	1.2876	26.451	2674	1.168	3122	2.332	0.13137	13.568	0.4032	2067	6.374	152.3	0.30	0.50
NOZZLE AE		48	41 2														
89.596	16.207	2948	474.6(852)	1.2883	26.451	2672											
89.596	0.345	1141	=63.6(306)	1.3660	26.452	1712	3.088	5285	2.271	0.02734	13.568	1.9373	2400	2.246	176.9	0.30	0.50
NOZZLE P0		49	42 2														
89.596	16.207	2948	474.6(852)	1.2883	26.451	2672											
89.596	0.388	1178	=73.4(317)	1.3638	26.452	1737	3.014	5236	2.271	0.02952	13.568	1.7942	2387	2.403	175.9	0.30	0.50
NOZZLE AE REGEN		50	43 3														
89.596	16.207	3515	671.9(1049)	1.2649	26.442	2891											
89.596	0.412	1481	13.6(404)	1.3459	26.452	1935	2.965	5739	2.332	0.02735	13.568	1.9371	2625	2.439	193.5	0.30	0.50
NOZZLE P0 REGEN		51	44 3														
89.596	16.207	3515	671.9(1049)	1.2649	26.442	2891											
89.596	0.388	1458	6.9(397)	1.3472	26.452	1921	3.002	5768	2.332	0.02627	13.568	2.0163	2633	2.355	194.1	0.30	0.50
FICTIVE COMBUSTR		71	64 0														
67.360	252.124	3699	474.6(1098)	1.2539	27.312	2906											
67.360	0.388	767	=438.2(199)	1.3807	27.322	1388	4.870	6758	2.106	0.06046	13.568	0.8762	2937	6.350	216.5	0.30	1.00
FICTIVE NOZZLE		72	65 0														
89.596	14.005	2868	447.9(835)	1.2911	26.451	2638											
89.596	0.363	1164	=77.2(313)	1.3646	26.452	1728	2.966	5126	2.273	0.02735	13.568	1.9371	2342	2.178	172.6	0.30	0.50

READING = 0061 BLOCK = 160 TIME = 243.662 MACH 6.0 PT = 745.249 TT = 2992.5

X/BS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.055E 00	0.000	-4.645E-01	0.000	0.000	0.000	2.470E-02	2.720E 00	1.416E-03	0.000	0.000
1.836E 01	1.055E 00	0.000	-3.515E 01	0.000	0.000	0.000	1.634E 02	2.720E 00	1.416E-03	0.000	0.000
3.070E 01	2.260E 00	0.000	-1.695E 02	0.000	0.000	0.000	5.053E 02	5.826E 00	3.033E-03	0.000	0.000
3.508E 01	3.959E 00	0.000	-3.711E 02	0.000	0.000	0.000	6.804E 02	1.021E 01	5.313E-03	0.000	0.000
3.555E 01	4.075E 00	0.000	-4.077E 02	0.000	0.000	0.000	7.013E 02	1.050E 01	5.468E-03	0.000	0.000
3.606E 01	3.975E 00	0.000	-4.485E 02	-2.369E 02	-2.369E 02	0.000	7.246E 02	1.025E 01	5.334E-03	0.000	0.000
3.648E 01	4.277E 00	0.000	-4.838E 02	-2.426E 02	-2.426E 02	0.000	7.443E 02	1.102E 01	5.739E-03	0.000	0.000
3.701E 01	4.240E 00	0.000	-5.309E 02	-2.502E 02	-2.502E 02	0.000	7.696E 02	1.093E 01	5.689E-03	0.000	0.000
3.750E 01	4.060E 00	5.670E 00	-6.319E 02	-2.575E 02	-2.575E 02	0.000	7.956E 02	1.047E 01	5.448E-03	1.462E 01	7.609E-03
3.750E 01	4.058E 00	5.718E 00	-6.320E 02	-2.575E 02	-2.575E 02	0.000	7.939E 02	1.046E 01	5.445E-03	1.474E 01	7.673E-03
3.803E 01	3.865E 00	9.906E 00	-6.276E 02	-2.658E 02	-2.658E 02	0.000	8.499E 02	9.963E 00	5.186E-03	2.554E 01	1.329E-02
3.817E 01	5.007E 00	1.102E 01	-6.223E 02	-2.683E 02	-2.683E 02	0.000	8.651E 02	1.291E 01	6.718E-03	2.842E 01	1.479E-02
3.875E 01	9.717E 00	1.364E 01	-6.139E 02	-3.259E 02	-2.820E 02	-4.393E 01	9.291E 02	2.505E 01	1.304E-02	3.517E 01	1.831E-02
3.901E 01	1.183E 01	1.482E 01	-6.131E 02	-3.376E 02	-2.901E 02	-4.749E 01	9.583E 02	3.050E 01	1.587E-02	3.820E 01	1.989E-02
3.950E 01	1.134E 01	1.704E 01	-6.103E 02	-3.985E 02	-3.093E 02	-8.921E 01	1.014E 03	2.923E 01	1.521E-02	4.391E 01	2.286E-02
3.963E 01	1.274E 01	1.762E 01	-6.082E 02	-4.099E 02	-3.153E 02	-9.454E 01	1.029E 03	3.285E 01	1.710E-02	4.543E 01	2.365E-02
4.000E 01	1.672E 01	2.281E 01	-6.021E 02	-4.440E 02	-3.345E 02	-1.095E 02	1.072E 03	4.311E 01	2.244E-02	5.880E 01	3.061E-02
4.040E 01	2.679E 01	2.842E 01	-6.003E 02	-4.835E 02	-3.579E 02	-1.256E 02	1.118E 03	6.907E 01	3.595E-02	7.327E 01	3.814E-02
4.041E 01	2.704E 01	2.856E 01	-6.001E 02	-4.845E 02	-3.585E 02	-1.260E 02	1.119E 03	6.971E 01	3.629E-02	7.363E 01	3.833E-02
4.065E 01	3.310E 01	3.194E 01	-6.025E 02	-5.089E 02	-3.732E 02	-1.357E 02	1.147E 03	8.532E 01	4.441E-02	8.233E 01	4.285E-02
4.112E 01	4.493E 01	3.962E 01	-6.085E 02	-5.581E 02	-4.036E 02	-1.545E 02	1.202E 03	1.158E 02	6.029E-02	1.021E 02	5.317E-02
4.150E 01	5.449E 01	4.729E 01	-6.107E 02	-5.994E 02	-4.298E 02	-1.696E 02	1.247E 03	1.405E 02	7.311E-02	1.219E 02	6.345E-02
4.163E 01	5.649E 01	4.992E 01	-6.095E 02	-6.140E 02	-4.392E 02	-1.747E 02	1.262E 03	1.456E 02	7.579E-02	1.287E 02	6.699E-02
4.212E 01	6.399E 01	3.900E 00	-6.707E 02	-6.697E 02	-4.798E 02	-1.939E 02	1.320E 03	1.650E 02	8.586E-02	1.005E 01	5.233E-03
4.246E 01	6.919E 01	3.798E 00	-7.614E 02	-7.083E 02	-5.015E 02	-2.068E 02	1.360E 03	1.784E 02	9.284E-02	9.791E 00	5.096E-03
4.262E 01	6.650E 01	3.750E 00	-8.027E 02	-7.262E 02	-5.133E 02	-2.129E 02	1.379E 03	1.714E 02	8.923E-02	9.667E 00	5.032E-03
4.361E 01	4.999E 01	2.896E 00	-1.003E 03	-8.585E 02	-5.815E 02	-2.769E 02	1.497E 03	1.289E 02	6.707E-02	7.466E 00	3.886E-03
4.362E 01	4.982E 01	2.888E 00	-1.005E 03	-8.601E 02	-5.822E 02	-2.779E 02	1.498E 03	1.284E 02	6.685E-02	7.444E 00	3.875E-03
4.368E 01	4.873E 01	2.831E 00	-1.015E 03	-8.704E 02	-5.864E 02	-2.840E 02	1.506E 03	1.256E 02	6.539E-02	7.298E 00	3.799E-03
4.431E 01	3.818E 01	8.362F 00	-1.103E 03	-9.791E 02	-6.260E 02	-3.531E 02	1.582E 03	9.841E 01	5.123E-02	2.156E 01	1.122E-02
4.480E 01	2.996E 01	1.267E 01	-1.143E 03	-1.071E 03	-6.549E 02	-4.166E 02	1.641E 03	7.724E 01	4.020E-02	3.265E 01	1.700E-02
4.626E 01	2.741E 01	2.549E 01	-1.164E 03	-1.348E 03	-7.350E 02	-6.125E 02	1.819E 03	7.066E 01	3.678E-02	6.572E 01	3.421E-02
4.640E 01	2.716E 01	2.673E 01	-1.160E 03	-1.374E 03	-7.423E 02	-6.312E 02	1.836E 03	7.003E 01	3.645E-02	6.890E 01	3.586E-02
4.712E 01	2.592E 01	2.386E 01	-1.139E 03	-1.498E 03	-7.787E 02	-7.194E 02	1.924E 03	6.680E 01	3.477E-02	6.150E 01	3.201E-02
4.731E 01	2.557E 01	2.308E 01	-1.131E 03	-1.529E 03	-7.883E 02	-7.409E 02	1.948E 03	6.593E 01	3.432E-02	5.949E 01	3.097E-02
4.811E 01	1.980E 01	1.987E 01	-1.087E 03	-1.648E 03	-8.266E 02	-8.213F 02	2.047E 03	5.104E 01	2.657E-02	5.121E 01	2.666E-02
4.964E 01	1.372E 01	1.372E 01	-9.632E 02	-1.858E 03	-8.942E 02	-9.638E 02	2.237E 03	3.538E 01	1.842E-02	3.538E 01	1.842E-02
5.109E 01	9.627E 00	9.627E 00	-8.759E 02	-2.027E 03	-9.515E 02	-1.075E 03	2.418E 03	2.482E 01	1.292E-02	2.482E 01	1.292E-02
5.162E 01	8.129E 00	8.129E 00	-8.514E 02	-2.075E 03	-9.708E 02	-1.104E 03	2.485E 03	2.096E 01	1.091E-02	2.096E 01	1.091E-02
5.303E 01	6.631E 00	6.631E 00	-7.969E 02	-2.187E 03	-1.018E 03	-1.169E 03	2.662E 03	1.709E 01	8.898E-03	1.709E 01	8.898E-03
5.513E 01	4.725E 00	4.725E 00	-7.343E 02	-2.323E 03	-1.077E 03	-1.246E 03	2.929E 03	1.218E 01	6.340E-03	1.218E 01	6.340E-03
5.563E 01	4.696E 00	4.696E 00	-7.221E 02	-2.351E 03	-1.089E 03	-1.262E 03	2.992E 03	1.210E 01	6.301E-03	1.210E 01	6.301E-03
5.576E 01	4.608E 00	4.608E 00	-7.190E 02	-2.358E 03	-1.092E 03	-1.266E 03	3.009E 03	1.188E 01	6.184E-03	1.188E 01	6.184E-03
5.638E 01	4.189E 00	4.189E 00	-6.518E 02	-2.392E 03	-1.107E 03	-1.285E 03	3.051E 03	1.080E 01	5.621E-03	1.080E 01	5.621E-03
5.714E 01	1.832E 00	3.675E 00	-6.365E 02	-2.431E 03	-1.125E 03	-1.306E 03	3.109E 03	4.724E 00	2.459E-03	9.473E 00	4.931E-03
5.857E 01	2.245E 00	2.245E 00	-6.155E 02	-2.494E 03	-1.154E 03	-1.340E 03	3.217E 03	5.786E 00	3.012E-03	5.786E 00	3.012E-03
5.862E 01	3.450E 00	2.189E 00	-6.148E 02	-2.496E 03	-1.155E 03	-1.341E 03	3.224E 03	8.893E 00	4.629E-03	5.644E 00	2.938E-03
5.876E 01	3.450E 00	2.049E 00	-6.135E 02	-2.502E 03	-1.158E 03	-1.344E 03	3.241E 03	8.893E 00	4.629E-03	5.282E 00	2.749E-03
5.884E 01	1.969E 00	1.969E 00	-6.127E 02	-2.505E 03	-1.159E 03	-1.345E 03	3.252E 03	5.075E 00	2.641E-03	5.075E 00	2.641E-03
5.912E 01	1.687E 00	1.687E 00	-6.103E 02	-2.515E 03	-1.164E 03	-1.351E 03	3.287E 03	4.350E 00	2.264E-03	4.350E 00	2.264E-03
5.935E 01	1.783E 00	1.783E 00	-6.086E 02	-2.522E 03	-1.168E 03	-1.355E 03	3.316E 03	4.595E 00	2.392E-03	4.595E 00	2.392E-03
6.007E 01	2.087E 00	2.087E 00	-6.033E 02	-2.545E 03	-1.178E 03	-1.367E 03	3.409E 03	5.381E 00	2.801E-03	5.381E 00	2.801E-03
6.109E 01	1.912E 00	1.912E 00	-5.987E 02	-2.575E 03	-1.190E 03	-1.385E 03	3.539E 03	4.930E 00	2.566E-03	4.930E 00	2.566E-03
6.310E 01	3.150E 00	3.150E 00	-5.981E 02	-2.654E 03	-1.207E 03	-1.427E 03	3.797E 03	8.120E 00	4.227E-03	8.120E 00	4.227E-03
6.452E 01	2.969E 00	2.969E 00	-5.981E 02	-2.672E 03	-1.216E 03	-1.455E 03	3.980E 03	7.653E 00	3.984E-03	7.653E 00	3.984E-03
6.698E 01	5.394E 00	5.394E 00	-5.981E 02	-2.745E 03	-1.235E 03	-1.510E 03	4.296E 03	1.390E 01	7.238E-03	1.390E 01	7.238E-03

READING = 0061 BLOCK = 160 TIME = 243.662 MACH 6.0 PT = 745.249 TT = 2992.5

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.736E 01	4.762E 00	5.764E 00	-5.981E 02	-2.756E 03	-1.239E 03	-1.520E 03	4.344E 03	1.228E 01	6.390E-03	1.486E 01	7.734E-03
6.740E 01	4.762E 00	5.803E 00	-5.981E 02	-2.760E 03	-1.239E 03	-1.521E 03	4.349E 03	1.228E 01	6.390E-03	1.496E 01	7.787E-03
6.760E 01	4.510E 00	6.000E 00	-5.981E 02	-2.766E 03	-1.241E 03	-1.526E 03	4.375E 03	1.162E 01	6.051E-03	1.547E 01	8.051E-03
6.926E 01	2.410E 00	3.250E 00	-5.517E 02	-2.816E 03	-1.252E 03	-1.564E 03	4.591E 03	6.213E 00	3.234E-03	8.378E 00	4.361E-03
6.993E 01	1.961E 00	3.000E 00	-4.980E 02	-2.853E 03	-1.255E 03	-1.578E 03	4.672E 03	5.055E 00	2.631E-03	7.733E 00	4.025E-03
7.070E 01	1.445E 00	2.623E 00	-4.374E 02	-2.853E 03	-1.258E 03	-1.595E 03	4.767E 03	3.725E 00	1.939E-03	6.761E 00	3.519E-03
7.142E 01	1.399E 00	2.270E 00	-3.887E 02	-2.872E 03	-1.260E 03	-1.612E 03	4.855E 03	3.606E 00	1.877E-03	5.852E 00	3.046E-03
7.203E 01	1.360E 00	1.861E 00	-3.519E 02	-2.888E 03	-1.262E 03	-1.626E 03	4.929E 03	3.506E 00	1.825E-03	4.798E 00	2.498E-03
7.298E 01	9.883E-01	1.225E 00	-3.091E 02	-2.909E 03	-1.265E 03	-1.644E 03	5.043E 03	2.548E 00	1.326E-03	3.158E 00	1.644E-03
7.341E 01	8.200E-01	1.133E 00	-2.945E 02	-2.917E 03	-1.266E 03	-1.651E 03	5.096E 03	2.114E 00	1.100E-03	2.920E 00	1.520E-03
7.494E 01	6.561E-01	8.050E-01	-2.542E 02	-2.941E 03	-1.269E 03	-1.672E 03	5.280E 03	1.691E 00	8.803E-04	2.075E 00	1.080E-03
7.509E 01	6.400E-01	7.208E-01	-2.512E 02	-2.944E 03	-1.270E 03	-1.674E 03	5.297E 03	1.650E 00	8.588E-04	1.858E 00	9.672E-04
7.584E 01	5.462E-01	3.000E-01	-2.328E 02	-2.956E 03	-1.271E 03	-1.685E 03	5.382E 03	1.408E 00	7.330E-04	7.733E-01	4.025E-04
7.584E 01	5.457E-01	2.977E-01	-2.322E 02	-2.956E 03	-1.271E 03	-1.685E 03	5.382E 03	1.407E 00	7.323E-04	7.675E-01	3.995E-04
7.717E 01	3.800E-01	0.000	-2.224E 02	-2.980E 03	-1.273E 03	-1.707E 03	5.434E 03	9.796E-01	5.099E-04	0.000	0.000
8.002E 01	2.950E-01	0.000	-2.089E 02	-2.984E 03	-1.276E 03	-1.708E 03	5.532E 03	7.605E-01	3.958E-04	0.000	0.000
8.392E 01	3.150E-01	0.000	-1.959E 02	-3.115E 03	-1.278E 03	-1.837E 03	5.637E 03	8.120E-01	4.227E-04	0.000	0.000
8.673E 01	3.250E-01	0.000	-1.888E 02	-3.117E 03	-1.280E 03	-1.837E 03	5.691E 03	8.378E-01	4.361E-04	0.000	0.000
8.959E 01	3.700E-01	0.000	-1.804E 02	-3.119E 03	-1.282E 03	-1.837E 03	5.714E 03	9.538E-01	4.965E-04	0.000	0.000
8.960E 01	3.701E-01	0.000	-1.804E 02	-3.119E 03	-1.282E 03	-1.837E 03	5.714E 03	9.540E-01	4.966E-04	0.000	0.000

X	DDRAG	CDRAG	CF	MC
4.040E 01	1.090E 02	1.090E 02	2.483E-03	4.707E-02
4.041E 01	1.880E-01	1.091E 02	2.931E-05	6.561E-02
4.065E 01	4.611E 00	1.138E 02	3.019E-03	7.050E-02
4.112E 01	8.756E 00	1.225E 02	3.184E-03	7.715E-02
4.150E 01	6.619E 00	1.291E 02	3.317E-03	7.955E-02
4.163E 01	2.146E 00	1.313E 02	3.335E-03	8.009E-02
4.212E 01	8.390E 00	1.397E 02	3.313E-03	6.300E-02
4.246E 01	5.837E 00	1.455E 02	3.442E-03	6.013E-02
4.262E 01	2.576E 00	1.481E 02	3.490E-03	5.686E-02
4.361E 01	1.504E 01	1.631E 02	3.892E-03	5.995E-02
4.362E 01	1.394E-01	1.633E 02	3.424E-03	4.691E-02
4.368E 01	8.127E-01	1.641E 02	3.345E-03	4.742E-02
4.431E 01	7.577E 00	1.717E 02	3.442E-03	4.161E-02
4.480E 01	5.652E 00	1.773E 02	3.489E-03	3.820E-02
4.626E 01	1.492E 01	1.922E 02	3.525E-03	3.900E-02
4.640E 01	1.306E 00	1.935E 02	3.787E-03	3.550E-02
4.712E 01	6.580E 00	2.001E 02	3.533E-03	3.733E-02
4.731E 01	1.700E 00	2.018E 02	3.484E-03	3.745E-02
4.811E 01	6.928E 00	2.087E 02	3.405E-03	3.438E-02
4.964E 01	1.219E 01	2.209E 02	3.210E-03	2.809E-02
5.109E 01	9.923E 00	2.309E 02	3.062E-03	2.270E-02
5.162E 01	3.358E 00	2.342E 02	3.089E-03	1.996E-02
5.303E 01	8.191E 00	2.424E 02	2.927E-03	1.758E-02
5.513E 01	1.029E 01	2.527E 02	2.785E-03	1.388E-02
5.563E 01	2.186E 00	2.549E 02	2.763E-03	1.374E-02
5.576E 01	5.501E-01	2.554E 02	2.756E-03	1.356E-02
5.638E 01	1.203E 00	2.566E 02	2.661E-03	1.199E-02
5.714E 01	1.506E 00	2.581E 02	2.778E-03	8.647E-03
5.857E 01	2.674E 00	2.608E 02	2.508E-03	7.881E-03
5.862E 01	1.589E-01	2.610E 02	2.503E-03	9.297E-03
5.876E 01	4.009E-01	2.614E 02	2.610E-03	8.822E-03
5.884E 01	2.726E-01	2.616E 02	3.271E-03	5.930E-03
5.912E 01	9.796E-01	2.626E 02	2.589E-03	6.267E-03
5.935E 01	6.821E-01	2.633E 02	2.443E-03	6.745E-03
6.007E 01	2.075E 00	2.654E 02	2.413E-03	7.559E-03
6.109E 01	2.850E 00	2.682E 02	2.379E-03	7.124E-03
6.310E 01	5.569E 00	2.738E 02	2.429E-03	1.002E-02
6.452E-01	4.174E 00	2.780E 02	2.650E-03	9.045E-03
6.698E 01	7.110E 00	2.851E 02	2.764E-03	1.289E-02
6.736E 01	1.020E 00	2.861E 02	3.200E-03	1.088E-02
6.740E 01	1.114E-01	2.862E 02	3.213E-03	1.075E-02
6.760E 01	5.578E-01	2.868E 02	3.211E-03	1.072E-02
6.926E 01	4.369E 00	2.911E 02	3.068E-03	7.531E-03
6.993E 01	1.497E 00	2.926E 02	3.039E-03	6.919E-03
7.070E 01	1.623E 00	2.943E 02	2.998E-03	6.069E-03
7.142E 01	1.408E 00	2.957E 02	2.973E-03	5.654E-03
7.203E 01	1.121E 00	2.968E 02	2.946E-03	5.168E-03
7.298E 01	1.528E 00	2.983E 02	2.873E-03	3.963E-03
7.341E 01	6.062E-01	2.989E 02	2.849E-03	3.619E-03
7.494E 01	1.910E 00	3.008E 02	2.789E-03	2.921E-03
7.509E 01	1.603E-01	3.010E 02	2.776E-03	2.771E-03
7.584E 01	6.698E-01	3.017E 02	2.686E-03	1.944E-03
7.584E 01	1.097E-03	3.017E 02	2.685E-03	1.939E-03
7.717E 01	3.393E-01	3.020E 02	2.660E-03	1.789E-03
8.002E 01	5.714E-01	3.026E 02	2.601E-03	1.470E-03
8.392E 01	5.699E-01	3.031E 02	2.594E-03	1.553E-03

READING = 0061 BLOCK = 160 TIME = 243.662 MACH 6.0 PT = 745.249 TT = 2992.5

X	DDRAG	CDRAG	CF	HC
8.673E 01	3.040E-01	3.035E 02	2.587E-03	1.561E-03
8.959E 01	1.326E-01	3.036E 02	2.598E-03	1.713E-03
8.960E 01	0.000	3.036E 02	2.598E-03	1.713E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=471.	(LBF)
MEASURED THRUST	=431.	(LBF)
CALCULATED SPECIFIC IMPULSE	=3596.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=3286.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.1889	
MEASURED THRUST COEFFICIENT	=.1726	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	2561.	(LBF)
NET THRUST	=252.	(LBF)
SPECIFIC IMPULSE	=1922.	(LBF=SEC/LBM)
THRUST COEFFICIENT	=.1010	

MOMENTUM AND FORCES

INLET FRICTION DRAG	109.0	(LBF)
INLET MOMENTUM CHANGE	=709.2	(LBF)
COMBUSTOR FRICTION DRAG	177.2	(LBF)
COMBUSTOR STRUT DRAG	=12.64	(LBF)
COMBUSTOR MOMENTUM CHANGE	=162.	(LBF)
NOZZLE FRICTION DRAG	17.48	(LBF)
NOZZLE STRUT DRAG	=0.00	(LBF)
NOZZLE MOMENTUM CHANGE	400.	(LBF)
NOZZLE PRESSURE INTEGRAL	418.	(LBF)
EXTERNAL FRICTION DRAG	59.02	(LBF)
EXTERNAL PRESSURE INTEGRAL	=1152.	(LBF)
TOTAL EXTERNAL DRAG	=1211.	(LBF)
TOTAL STRUT DRAG	=12.64	(LBF)
CAVITY FORCE	=1043.	(LBF)
CALCULATED LOAD CELL FORCE	=2725.	(LBF)
MEASURED LOAD CELL FORCE	=2685.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0,		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	2.6205	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	37.504	(IN)
NOZZLE SHROUD TRAILING EDGE	75.844	(IN)
NOZZLE PLUG TRAILING EDGE	89.596	(IN)
STRUT LEADING EDGE	58.760	(IN)
STRUT TRAILING EDGE	67.360	(IN)
COMBUSTOR EXIT	67.360	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.4950	
ADDITIVE DRAG COEFFICIENT	0.0978	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1515	
DELTA PT2	0.1134	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.3383	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1537	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8903	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9042	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9074	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8618	
ENTHALPY AT P0 = SUPERSONIC	=2.81	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	29.07	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0098	
EQUIVALENCE RATIO	0.297	
COMBUSTOR EFFICIENCY	0.497	
TOTAL PRESSURE RATIO	0.0643	
COMBUSTOR EFFECTIVENESS	0.3392	
INJECTOR DISCHARGE COEFFICIENTS	0.7187,	0.6013,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9757
NOZZLE COEFFICIENT = CT	0.9006
PROCESS EFFICIENCY	0.9937
KINETIC ENERGY EFFICIENCY	0.9481

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	43.605	B
1C	44.300	
2A	51.080	
2C	46.250	
3A	56.370	
3B	58.555	
4	47.105	

Reading 61

$t = 246.36$ sec.

ϕ's were higher than planned.

READING = 0061 BLOCK = 163 TIME = 246.362 MACH 6.0 PT = 745.499 TT = 2995.5

RAMJET PERFORMANCE

3-4-75

SUMMARY REPORT

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	745.499	2994	667.6	(793)	1.2930	28.955	2578											
0.000	0.388	406	=31.5	(97)	1.3989	28.953	987	5.991	5915	1.827	0.10602	13.460	0.4957	2524	9.745	187.5		
SPIKE TIP NS		2	0	6														
0.600	19.100	2993	667.6	(793)	1.2929	28.954	2578											
0.600	17.482	2934	649.6	(775)	1.2948	28.954	2554											
								0.372	950	2.078	0.10602	13.460	0.4957	2617	1.565	194.4		
WIND TUNNEL		3	0	0														
0.000	745.499	2994	667.6	(793)	1.2930	28.955	2578											
0.000	0.414	413	=29.7	(99)	1.3989	28.954	996	5.929	5907	1.827	0.11079	14.067	0.4957	2635	10.171	187.3		
SPIKE TIP NS		4	0	0														
0.600	19.100	2993	667.6	(793)	1.2929	28.954	2578											
0.600	17.312	2927	647.7	(773)	1.2950	28.954	2551	0.392	1000	2.078	0.11079	14.067	0.4957	2635	1.722	187.3		
INLET THROAT		5	0	5														
40.400	243.310	2909	642.2	(768)	1.2957	28.954	2544											
40.400	16.153	1504	243.1	(372)	1.3478	28.954	1865	2.395	4468	1.895	0.89948	13.460	0.0584	2111	62.462	156.8		
INLET UPNRSK		6	0	3														
40.400	243.310	2909	642.2	(768)	1.2957	28.954	2544											
40.400	13.842	1445	227.5	(356)	1.3511	28.954	1831	2.488	4555	1.895	0.81771	13.460	0.0643	2134	57.884	158.5		
INLET DNNRSK		7	0	4														
40.400	114.730	2909	642.2	(768)	1.2957	28.954	2544											
40.400	97.803	2805	610.9	(737)	1.2990	28.954	2501	0.500	1251	1.947	0.81771	13.460	0.0643	2134	15.904	158.5		
COMBUSTOR	0	8	1	4														
40.410	145.693	3278	644.9	(923)	1.2792	27.713	2743											
40.410	28.246	2251	322.6	(607)	1.3139	27.715	2303	1.744	4016	2.056	0.90378	13.527	0.0584	2111	56.406	156.1	0.18	0.59
COMBUSTOR	0	9	2	4														
40.648	133.629	3441	643.3	(972)	1.2710	27.910	2791											
40.648	32.986	2519	348.2	(685)	1.3025	27.914	2417	1.590	3842	2.071	0.90899	13.527	0.0581	2106	54.273	155.7	0.15	0.80
COMBUSTOR	0	10	3	202														
41.118	122.868	3584	639.9	(1014)	1.2635	28.094	2831											
41.118	42.025	2840	396.9	(781)	1.2895	28.101	2546	1.370	3487	2.081	0.90458	13.527	0.0584	2094	49.014	154.8	0.15	1.00
COMBUSTOR	0	11	4	200														
41.500	118.331	3575	637.0	(1012)	1.2637	28.094	2828											
41.500	50.581	2978	440.5	(824)	1.2848	28.100	2602	1.205	3136	2.083	0.89050	13.527	0.0593	2087	43.401	154.3	0.15	1.00
COMBUSTOR	0	12	5	200														
41.628	116.891	3572	636.1	(1011)	1.2638	28.094	2827											
41.628	52.915	3013	451.8	(835)	1.2836	28.100	2616	1.161	3036	2.084	0.88379	13.527	0.0598	2086	41.703	154.2	0.15	1.00
COMBUSTOR	0	13	6	21														
42.118	102.152	3561	632.3	(1007)	1.2640	28.094	2822											
42.118	33.821	2801	384.4	(769)	1.2908	28.101	2529	1.392	3521	2.092	0.85100	13.527	0.0621	2018	46.571	149.2	0.15	1.00
COMBUSTOR	0	14	7	21														
42.460	86.225	3553	629.6	(1005)	1.2640	28.094	2819											
42.460	30.500	2952	432.2	(816)	1.2855	28.100	2591	1.213	3142	2.104	0.82275	13.527	0.0642	1921	40.178	142.0	0.15	1.00
COMBUSTOR	0	15	8	21														
42.618	79.508	3549	628.4	(1003)	1.2640	28.094	2818											
42.618	35.148	2977	440.3	(824)	1.2846	28.100	2601	1.179	3067	2.109	0.80849	13.527	0.0653	1878	38.541	138.8	0.15	1.00
COMBUSTOR	0	16	9	21														
43.603	57.523	2809	627.7	(826)	1.3012	25.808	2654											
43.603	26.527	2340	474.6	(674)	1.3169	25.808	2436	1.136	2768	2.183	0.72970	13.592	0.0727	1663	31.386	122.4	0.30	0.11
COMBUSTOR	0	17	10	21														
43.613	59.799	2660	627.6	(779)	1.3081	25.656	2597											
43.613	26.440	2186	474.8	(628)	1.3240	25.656	2368	1.167	2765	2.166	0.72966	13.592	0.0727	1661	31.350	122.2	0.30	0.02
COMBUSTOR	0	18	11	21														
43.678	58.737	2635	626.9	(772)	1.3092	25.634	2587											
43.678	25.871	2163	474.8	(621)	1.3251	25.634	2358	1.170	2759	2.165	0.72586	13.592	0.0731	1650	31.119	121.4	0.30	0.00

	P	T	H	GAMMA	BOLMT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
44.310	50.199	2610	619.5(763)	1.3161	25.631	2575											
44.310	25.218	2211	491.1(636)	1.3234	25.631	2383	1.064	2535	2.174	0.70240	13.592	0.0756	1559	27.671	114.7	0.30	0.00
COMBUSTOR	0	20	13 21														
44.800	47.025	2590	613.4(757)	1.3107	25.630	2566											
44.800	24.711	2219	493.6(638)	1.3252	25.630	2386	1.026	2448	2.176	0.68360	13.592	0.0776	1525	26.005	112.2	0.30	0.00
COMBUSTOR	0	21	14 21														
46.250	49.413	2530	610.9(792)	1.3145	23.816	2635											
46.250	35.556	2337	544.1(726)	1.3210	23.816	2539	0.720	1828	2.295	0.64071	13.685	0.0834	1537	18.206	112.3	0.51	0.03
COMBUSTOR	0	22	15 21														
46.260	49.924	2464	610.8(770)	1.3176	23.756	2607											
46.260	35.631	2270	544.1(704)	1.3241	23.756	2508	0.729	1828	2.286	0.64114	13.685	0.0833	1538	18.212	112.4	0.51	0.00
COMBUSTOR	0	23	16 21														
46.398	50.646	2449	609.1(765)	1.3182	23.747	2600											
46.398	36.666	2264	545.4(702)	1.3244	23.747	2506	0.712	1785	2.283	0.63660	13.685	0.0839	1548	17.661	113.1	0.51	0.00
COMBUSTOR	0	24	17 21														
47.113	50.661	2424	600.8(756)	1.3191	23.745	2587											
47.113	34.079	2200	524.1(680)	1.3267	23.745	2472	0.792	1959	2.279	0.61036	13.685	0.0875	1597	18.581	116.7	0.51	0.00
COMBUSTOR	0	25	18 21														
47.310	47.064	2953	598.7(932)	1.2945	24.250	2800											
47.310	33.368	2729	518.7(854)	1.3021	24.250	2699	0.741	2001	2.338	0.59922	13.685	0.0892	1613	18.638	117.9	0.51	0.22
COMBUSTOR	0	26	19 21														
48.110	49.198	2475	590.6(773)	1.3163	23.819	2608											
48.110	30.986	2212	500.3(683)	1.3253	23.819	2474	0.859	2126	2.287	0.54779	13.685	0.0975	1679	18.100	122.7	0.51	0.03
COMBUSTOR	0	27	20 3														
49.638	46.909	2455	576.1(766)	1.3168	23.838	2596											
49.638	17.962	1939	401.1(591)	1.3350	23.838	2323	1.274	2960	2.288	0.42307	13.685	0.1263	1840	19.461	134.5	0.51	0.04
COMBUSTOR	0	28	21 9														
51.078	42.550	2331	571.9(784)	1.3237	21.907	2646											
51.078	12.644	1719	350.4(563)	1.3466	21.907	2292	1.452	3329	2.433	0.34713	13.799	0.1552	1930	17.958	139.9	0.77	0.03
COMBUSTOR	0	29	22 2														
51.088	42.541	2331	571.8(784)	1.3237	21.907	2646											
51.088	12.607	1718	349.9(563)	1.3467	21.907	2291	1.454	3332	2.433	0.34668	13.799	0.1554	1931	17.952	139.9	0.77	0.03
COMBUSTOR	0	30	23 2														
51.618	42.588	2320	568.3(780)	1.3241	21.905	2640											
51.618	10.650	1635	321.8(534)	1.3503	21.905	2239	1.569	3512	2.431	0.32422	13.799	0.1662	1960	17.696	142.0	0.77	0.03
COMBUSTOR	0	31	24 4														
53.028	37.457	2492	559.8(841)	1.3159	22.069	2718											
53.028	9.481	1773	298.0(580)	1.3424	22.069	2316	1.563	3619	2.465	0.27633	13.799	0.1950	2025	15.540	146.8	0.77	0.09
COMBUSTOR	0	32	25 4														
55.128	35.126	2557	548.4(863)	1.3125	22.150	2745											
55.128	6.862	1708	239.5(556)	1.3441	22.150	2270	1.752	3932	2.475	0.22648	13.799	0.2379	2104	13.839	152.5	0.77	0.12
COMBUSTOR	0	33	26 4														
55.628	33.674	2608	546.2(881)	1.3101	22.199	2766											
55.628	6.725	1755	234.9(571)	1.3415	22.199	2296	1.719	3946	2.484	0.21723	13.799	0.2480	2120	13.322	153.6	0.77	0.14
COMBUSTOR	0	34	27 2														
55.760	33.687	2605	545.5(880)	1.3102	22.198	2765											
55.760	6.570	1742	230.9(567)	1.3421	22.198	2288	1.734	3968	2.484	0.21493	13.799	0.2507	2123	13.252	153.9	0.77	0.13
COMBUSTOR	0	35	28 5														
56.378	25.859	2956	542.7(1007)	1.2935	22.516	2906											
56.378	5.843	2080	214.8(682)	1.3245	22.517	2467	1.642	4050	2.541	0.16579	13.799	0.3250	2224	10.436	161.1	0.77	0.24
COMBUSTOR	0	36	29 5														
57.138	33.356	2634	539.3(891)	1.3086	22.238	2776											
57.138	3.792	1536	142.0(495)	1.3512	22.238	2154	2.070	4459	2.487	0.15841	13.799	0.3401	2243	10.977	162.5	0.77	0.15
COMBUSTOR	0	37	30 5														
58.563	24.301	3037	533.5(1035)	1.2892	22.612	2934											
58.563	4.977	2094	179.2(685)	1.3228	22.613	2468	1.706	4211	2.552	0.14647	13.799	0.3678	2275	9.585	164.9	0.77	0.27

READING = 0061 BLOCK = 163 TIME = 246.362 MACH 6.0 PT = 745.499 TT = 2995.5 PAGE 3

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	A	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 3														
58.618	24.360	3032	533.3(1034)	1.2894	22.608	2932											
58.618	4.927	2064	177.2(682)	1.3232	22.610	2462	1.714	4221	2.551	0.14603	13.799	0.3689	2276	9.586	164.9	0.77	0.27
COMBUSTOR	0	39	32 3														
58.758	24.125	3047	532.8(1039)	1.2887	22.622	2937											
58.758	4.928	2100	176.9(687)	1.3224	22.624	2470	1.708	4220	2.555	0.14498	13.799	0.3716	2279	9.507	165.1	0.77	0.27
COMBUSTOR	0	40	33 6														
58.838	24.424	3051	532.5(1040)	1.2885	22.627	2939											
58.838	4.982	2102	175.9(688)	1.3222	22.629	2471	1.709	4224	2.552	0.14656	13.799	0.3675	2281	9.622	165.3	0.77	0.27
COMBUSTOR	0	41	34 3														
59.118	24.391	3069	531.5(1047)	1.2876	22.646	2945											
59.118	4.987	2118	173.5(693)	1.3214	22.648	2478	1.708	4233	2.554	0.14610	13.799	0.3688	2266	9.610	165.7	0.77	0.28
COMBUSTOR	0	42	35 4														
59.344	26.259	2966	530.7(1009)	1.2927	22.653	2907											
59.344	4.470	1948	151.8(634)	1.3292	22.654	2389	1.823	4354	2.539	0.14585	13.799	0.3694	2290	9.669	166.0	0.77	0.25
COMBUSTOR	0	43	36 6														
60.068	39.001	2582	528.5(871)	1.3107	22.217	2752											
60.068	2.812	1332	81.6(426)	1.3619	22.217	2015	2.347	4729	2.467	0.14356	13.799	0.3753	2299	10.550	166.6	0.77	0.14
COMBUSTOR	0	44	37 5														
61.088	23.611	3156	525.5(1078)	1.2829	22.742	2975											
61.088	5.062	2211	167.3(725)	1.3167	22.744	2523	1.678	4234	2.563	0.14265	13.799	0.3777	2306	9.385	167.1	0.77	0.31
COMBUSTOR	0	45	38 5														
63.098	28.402	2919	519.8(992)	1.2946	22.536	2887											
63.098	4.200	1848	123.6(599)	1.3335	22.537	2331	1.910	4453	2.526	0.14761	13.799	0.3650	2302	10.214	166.9	0.77	0.24
COMBUSTOR	0	46	39 5														
64.518	20.800	3622	515.6(1249)	1.2557	23.220	3121											
64.518	8.487	2996	262.3(1008)	1.2817	23.233	2867	1.242	3560	2.603	0.15161	13.799	0.3553	2299	8.388	166.6	0.77	0.46
COMBUSTOR	0	47	40 4														
66.982	19.259	3707	507.2(1280)	1.2495	23.327	3142											
66.982	9.198	3182	290.6(1076)	1.2728	23.343	2937	1.121	3292	2.613	0.14371	13.799	0.3749	2295	7.351	166.3	0.77	0.50
COMBUSTOR	0	48	41 3														
67.358	17.794	3738	505.8(1291)	1.2468	23.363	3149											
67.358	9.284	3273	312.0(1111)	1.2683	23.380	2971	1.048	3114	2.621	0.13360	13.799	0.4032	2294	6.464	166.3	0.77	0.51
COMBUSTOR REGEN	49	42 21															
67.358	17.794	4019	634.0(1402)	1.2298	23.335	3245											
67.358	9.380	3553	427.8(1219)	1.2541	23.370	3079	1.043	3212	2.654	0.13360	13.799	0.4032	2346	6.669	170.0	0.77	0.51
NOZZLE AE	50	43 3															
89.594	17.794	3738	505.8(1274)	1.2468	23.363	3149											
89.594	0.480	1646	=289.6(517)	1.3328	23.386	2160	2.921	6309	2.621	0.02781	13.799	1.9370	2944	2.727	213.3	0.77	0.51
NOZZLE PO	51	44 3															
89.594	17.794	3738	505.8(1274)	1.2468	23.363	3149											
89.594	0.388	1561	=318.2(488)	1.3372	23.386	2107	3.048	6421	2.621	0.02416	13.799	2.2299	2976	2.411	215.6	0.77	0.51
NOZZLE AE REGEN	52	45 4															
89.594	17.794	4019	634.0(1402)	1.2295	23.335	3245											
89.594	0.520	1848	=220.0(587)	1.3234	23.386	2280	2.866	6537	2.654	0.02781	13.799	1.9371	3061	2.825	221.9	0.77	0.51
NOZZLE PO REGEN	53	46 4															
89.594	17.794	4019	634.0(1402)	1.2295	23.335	3245											
89.594	0.388	1720	=264.2(542)	1.3292	23.386	2205	3.040	6704	2.654	0.02289	13.799	2.3534	3109	2.385	225.3	0.77	0.51
FICTIVE COMBUSTR	73	66 0															
67.358	243.310	5072	505.8(1793)	1.1799	24.846	3461											
67.358	0.388	1362	=1010.8(404)	1.3316	25.142	1894	4.608	8729	2.446	0.04046	13.799	1.3514	3876	5.489	280.9	0.77	1.00
FICTIVE NOZZLE	74	67 0															
89.594	11.888	3663	483.3(1270)	1.2478	23.363	3127											
89.594	0.586	1877	=210.0(596)	1.3221	23.386	2297	2.564	5890	2.649	0.02781	13.799	1.9371	2817	2.546	204.1	0.77	0.51

READING = 0061 BLOCK = 163 TIME = 246.362 MACH 6.0 PI = 745.499 TI = 2993.5 PAGE 4

XABS	P-IB	P-OB	PDA	QUX	V-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.055E 00	0.000	-4.648E-01	0.000	0.000	0.000	2.470E-02	2.718E 00	1.415E-03	0.000	0.000
1.836E 01	1.055E 00	0.000	-3.515E 01	0.000	0.000	0.000	1.634E 02	2.716E 00	1.415E-03	0.000	0.000
3.070E 01	2.265E 00	0.000	-1.697E 02	0.000	0.000	0.000	5.053E 02	5.834E 00	3.038E-03	0.000	0.000
3.508E 01	3.963E 00	0.000	-3.715E 02	0.000	0.000	0.000	6.804E 02	1.021E 01	5.316E-03	0.000	0.000
3.555E 01	4.080E 00	0.000	-4.082E 02	0.000	0.000	0.000	7.013E 02	1.051E 01	5.473E-03	0.000	0.000
3.606E 01	3.980E 00	0.000	-4.491E 02	-2.297E 02	-2.297E 02	0.000	7.246E 02	1.025E 01	5.339E-03	0.000	0.000
3.646E 01	4.276E 00	0.000	-4.844E 02	-2.352E 02	-2.352E 02	0.000	7.443E 02	1.101E 01	5.735E-03	0.000	0.000
3.701E 01	4.240E 00	0.000	-5.315E 02	-2.426E 02	-2.426E 02	0.000	7.696E 02	1.092E 01	5.687E-03	0.000	0.000
3.750E 01	4.064E 00	5.675E 00	-6.324E 02	-2.496E 02	-2.496E 02	0.000	7.935E 02	1.047E 01	5.451E-03	1.462E 01	7.612E-03
3.750E 01	4.061E 00	5.722E 00	-6.325E 02	-2.497E 02	-2.497E 02	0.000	7.938E 02	1.046E 01	5.448E-03	1.474E 01	7.676E-03
3.803E 01	3.870E 00	9.903E 00	-6.279E 02	-2.578E 02	-2.578E 02	0.000	8.500E 02	9.969E 00	5.191E-03	2.551E 01	1.328E-02
3.817E 01	4.989E 00	1.100F 01	-6.230E 02	-2.601E 02	-2.601E 02	0.000	8.650E 02	1.285E 01	6.693E-03	2.834E 01	1.476E-02
3.875E 01	9.689E 00	1.368E 01	-6.142E 02	-2.077E 02	-2.733E 02	6.565E 01	9.293E 02	2.496E 01	1.300E-02	3.525E 01	1.835E-02
3.901E 01	1.179E 01	1.488E 01	-6.130E 02	-2.102E 02	-2.812E 02	7.098E 01	9.585E 02	3.037E 01	1.581E-02	3.834E 01	1.996E-02
3.950E 01	1.119E 01	1.714E 01	-6.100E 02	-2.648E 02	-2.996E 02	3.483E 01	1.014E 03	2.882E 01	1.501E-02	4.416E 01	2.300E-02
3.963E 01	1.264E 01	1.774E 01	-6.080E 02	-2.750E 02	-3.053E 02	3.029E 01	1.029E 03	3.255E 01	1.695E-02	4.569E 01	2.379E-02
4.000E 01	1.683E 01	2.336E 01	-6.007E 02	-3.065E 02	-3.238E 02	1.727E 01	1.072E 03	4.335E 01	2.257E-02	6.019E 01	3.134E-02
4.040E 01	2.667E 01	2.942E 01	-5.971E 02	-3.428E 02	-3.462E 02	3.311E 00	1.118E 03	6.870E 01	3.578E-02	7.579E 01	3.947E-02
4.041E 01	2.692E 01	2.958E 01	-5.969E 02	-3.438E 02	-3.467E 02	2.964E 00	1.119E 03	6.934E 01	3.611E-02	7.616E 01	3.967E-02
4.065E 01	3.278E 01	3.319E 01	-5.973E 02	-3.661E 02	-3.607E 02	-5.325E 00	1.147E 03	8.445E 01	4.398E-02	8.549E 01	4.452E-02
4.112E 01	4.435E 01	3.970E 01	-6.003E 02	-4.114E 02	-3.898E 02	-2.159E 01	1.202E 03	1.142E 02	5.949E-02	1.023E 02	5.325E-02
4.150E 01	5.374E 01	4.742E 01	-6.010E 02	-4.498E 02	-4.151E 02	-3.473E 01	1.247E 03	1.384E 02	7.208E-02	1.222E 02	6.361E-02
4.163E 01	5.581E 01	5.002E 01	-5.993E 02	-4.631E 02	-4.239E 02	-3.913E 01	1.262E 03	1.438E 02	7.486E-02	1.289E 02	6.710E-02
4.212E 01	6.369E 01	3.950E 00	-6.592E 02	-5.147E 02	-4.590E 02	-5.569E 01	1.320E 03	1.641E 02	8.543E-02	1.017E 01	5.298E-03
4.246E 01	6.919E 01	3.813E 00	-7.501E 02	-5.507E 02	-4.837E 02	-6.696E 01	1.360E 03	1.782E 02	9.281E-02	9.823E 00	5.115E-03
4.262E 01	6.655E 01	3.750E 00	-7.910E 02	-5.671E 02	-4.949E 02	-7.214E 01	1.379E 03	1.714E 02	8.926E-02	9.660E 00	5.030E-03
4.360E 01	5.013E 01	2.925E 00	-9.901E 02	-6.889E 02	-5.607E 02	-1.282E 02	1.497E 03	1.291E 02	6.724E-02	7.535E 00	3.924E-03
4.361E 01	4.996E 01	2.917E 00	-9.929E 02	-6.904E 02	-5.613E 02	-1.291E 02	1.498E 03	1.287E 02	6.702E-02	7.514E 00	3.913E-03
4.368E 01	4.888E 01	2.862E 00	-1.003E 03	-6.999E 02	-5.654E 02	-1.345E 02	1.506E 03	1.259E 02	6.557E-02	7.374E 00	3.840E-03
4.431E 01	3.835E 01	1.208E 01	-1.086E 03	-7.995E 02	-6.039E 02	-1.957E 02	1.582E 03	9.880E 01	5.145E-02	3.116E 01	1.621E-02
4.480E 01	3.019E 01	1.924E 01	-1.114E 03	-8.837E 02	-6.319E 02	-2.518E 02	1.641E 03	7.776E 01	4.049E-02	4.955E 01	2.580E-02
4.625E 01	3.071E 01	4.040E 01	-1.074E 03	-1.132E 03	-7.096E 02	-4.229E 02	1.818E 03	7.910E 01	4.119E-02	1.041E 02	5.420E-02
4.626E 01	3.071E 01	4.055E 01	-1.073E 03	-1.134E 03	-7.101E 02	-4.241E 02	1.819E 03	7.911E 01	4.120E-02	1.045E 02	5.439E-02
4.640E 01	3.076E 01	4.257E 01	-1.063E 03	-1.157E 03	-7.172E 02	-4.402E 02	1.836E 03	7.924E 01	4.126E-02	1.097E 02	5.711E-02
4.711E 01	3.102E 01	3.714E 01	-1.007E 03	-1.271E 03	-7.529E 02	-5.182E 02	1.924E 03	7.990E 01	4.161E-02	9.567E 01	4.982E-02
4.731E 01	3.109E 01	3.565E 01	-9.898E 02	-1.300E 03	-7.624E 02	-5.377E 02	1.948E 03	8.008E 01	4.170E-02	9.183E 01	4.782E-02
4.811E 01	3.240E 01	2.957E 01	-9.182E 02	-1.411E 03	-8.002E 02	-6.107E 02	2.047E 03	8.346E 01	4.346E-02	7.618E 01	3.967E-02
4.964E 01	1.796E 01	1.796E 01	-7.447E 02	-1.609E 03	-8.672E 02	-7.418E 02	2.237E 03	4.627E 01	2.409E-02	4.627E 01	2.409E-02
5.108E 01	1.264E 01	1.264E 01	-6.311E 02	-1.771E 03	-9.242E 02	-8.467E 02	2.417E 03	3.257E 01	1.696E-02	3.257E 01	1.696E-02
5.109E 01	1.261E 01	1.261E 01	-6.304E 02	-1.772E 03	-9.246E 02	-8.473E 02	2.418E 03	3.248E 01	1.691E-02	3.248E 01	1.691E-02
5.162E 01	1.065E 01	1.065E 01	-5.983E 02	-1.820E 03	-9.441E 02	-8.762E 02	2.485E 03	2.743E 01	1.429E-02	2.743E 01	1.429E-02
5.303E 01	9.481E 00	9.481E 00	-5.239E 02	-1.969E 03	-9.921E 02	-9.468E 02	2.662E 03	2.442E 01	1.272E-02	2.442E 01	1.272E-02
5.513E 01	6.862E 00	6.862E 00	-4.339E 02	-2.095E 03	-1.053E 03	-1.041E 03	2.929E 03	1.768E 01	9.205E-03	1.768E 01	9.205E-03
5.563E 01	6.725E 00	6.725E 00	-4.163E 02	-2.127E 03	-1.066E 03	-1.061E 03	2.992E 03	1.732E 01	9.021E-03	1.732E 01	9.021E-03
5.576E 01	6.570E 00	6.570F 00	-4.117E 02	-2.135E 03	-1.069E 03	-1.066E 03	3.009E 03	1.692E 01	8.813E-03	1.692E 01	8.813E-03
5.638E 01	5.843E 00	5.843E 00	-3.103E 02	-2.174E 03	-1.085E 03	-1.089E 03	3.051E 03	1.505E 01	7.838E-03	1.505E 01	7.838E-03
5.714E 01	2.635E 00	4.950E 00	-2.894E 02	-2.220E 03	-1.104E 03	-1.117E 03	3.109E 03	6.788E 00	3.535E-03	1.275E 01	6.640E-03
5.856E 01	4.977E 00	4.977E 00	-2.541E 02	-2.301E 03	-1.135E 03	-1.166E 03	3.217E 03	1.282E 01	6.676E-03	1.282E 01	6.676E-03
5.862E 01	4.875E 00	4.978E 00	-2.526E 02	-2.304E 03	-1.136E 03	-1.168E 03	3.224E 03	1.256E 01	6.539E-03	1.282E 01	6.677E-03
5.876E 01	4.875E 00	4.981E 00	-2.494E 02	-2.311E 03	-1.139E 03	-1.172F 03	3.241E 03	1.256E 01	6.539E-03	1.283E 01	6.681E-03
5.884E 01	4.982E 00	4.982E 00	-2.474F 02	-2.315F 03	-1.140E 03	-1.175E 03	3.252E 03	1.283E 01	6.683E-03	1.283E 01	6.683E-03
5.912E 01	4.987E 00	4.987F 00	-2.409E 02	-2.329E 03	-1.145E 03	-1.183E 03	3.287E 03	1.285E 01	6.690E-03	1.285E 01	6.690E-03
5.934E 01	4.470E 00	4.470E 00	-2.363E 02	-2.339E 03	-1.149E 03	-1.190E 03	3.316E 03	1.151E 01	5.996E-03	1.151E 01	5.996E-03
6.007E 01	2.812E 00	2.812E 00	-2.264E 02	-2.370E 03	-1.161E 03	-1.209E 03	3.409E 03	7.245E 00	3.773E-03	7.245E 00	3.773E-03
6.109E 01	5.062E 00	5.062E 00	-2.173E 02	-2.411E 03	-1.175E 03	-1.236E 03	3.539E 03	1.304E 01	6.791E-03	1.304E 01	6.791E-03
6.310E 01	4.200E 00	4.200E 00	-2.162E 02	-2.490E 03	-1.197E 03	-1.293E 03	3.797E 03	1.082E 01	5.634E-03	1.082E 01	5.634E-03

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CANALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OB/PT0
6.452E 01	8.487E 00	8.487E 00	=2.162E 02	=2.546E 03	=1.211E 03	=1.337E 03	3.980E 03	2.186E 01	1.138E=02	2.186E 01	1.138E=02
6.698E 01	9.198E 00	9.198E 00	=2.162E 02	=2.664E 03	=1.240E 03	=1.424E 03	4.296E 03	2.369E 01	1.234E=02	2.369E 01	1.234E=02
6.736E 01	9.262E 00	9.306E 00	=2.162E 02	=2.684E 03	=1.246E 03	=1.438E 03	4.348E 03	2.386E 01	1.242E=02	2.397E 01	1.248E=02
6.740E 01	9.262E 00	9.317E 00	=2.162E 02	=2.686E 03	=1.246E 03	=1.440E 03	4.349E 03	2.386E 01	1.242E=02	2.400E 01	1.250E=02
6.760E 01	8.842E 00	9.375E 00	=2.162E 02	=2.696E 03	=1.249E 03	=1.447E 03	4.375E 03	2.278E 01	1.186E=02	2.415E 01	1.258E=02
6.926E 01	5.350E 00	4.360E 00	=1.388E 02	=2.769E 03	=1.268E 03	=1.501E 03	4.591E 03	1.378E 01	7.176E=03	1.123E 01	5.848E=03
6.993E 01	3.831E 00	4.410E 00	=4.797E 01	=2.793E 03	=1.273E 03	=1.520E 03	4.672E 03	9.868E 00	5.139E=03	1.136E 01	5.915E=03
7.070E 01	2.085E 00	3.431E 00	4.585E 01	=2.819E 03	=1.279E 03	=1.540E 03	4.767E 03	5.371E 00	2.797E=03	8.837E 00	4.602E=03
7.142E 01	1.706E 00	2.515E 00	1.076E 02	=2.844E 03	=1.282E 03	=1.561E 03	4.855E 03	4.395E 00	2.288E=03	6.478E 00	3.374E=03
7.203E 01	1.385E 00	1.987E 00	1.482E 02	=2.864E 03	=1.285E 03	=1.578E 03	4.929E 03	3.568E 00	1.858E=03	5.119E 00	2.665E=03
7.298E 01	9.789E=01	1.165E 00	1.916E 02	=2.889E 03	=1.289E 03	=1.601E 03	5.043E 03	2.521E 00	1.313E=03	3.001E 00	1.563E=03
7.341E 01	7.950E=01	1.097E 00	2.058E 02	=2.899E 03	=1.290E 03	=1.609E 03	5.096E 03	2.048E 00	1.066E=03	2.826E 00	1.471E=03
7.494E 01	6.402E=01	8.550E=01	2.457E 02	=2.929E 03	=1.294E 03	=1.635E 03	5.280E 03	1.649E 00	8.587E=04	2.202E 00	1.147E=03
7.509E 01	6.250E=01	7.675E=01	2.488E 02	=2.931E 03	=1.294E 03	=1.637E 03	5.297E 03	1.610E 00	8.384E=04	1.977E 00	1.029E=03
7.584E 01	5.367E=01	3.300E=01	2.678E 02	=2.946E 03	=1.296E 03	=1.650E 03	5.382E 03	1.382E 00	7.199E=04	8.501E=01	4.427E=04
7.584E 01	5.362E=01	3.277E=01	2.685E 02	=2.947E 03	=1.296E 03	=1.651E 03	5.382E 03	1.381E 00	7.192E=04	8.440E=01	4.395E=04
7.717E 01	3.800E=01	0.000	2.781E 02	=2.977E 03	=1.298E 03	=1.678E 03	5.434E 03	9.789E=01	5.097E=04	0.000	0.000
8.002E 01	3.550E=01	0.000	2.928E 02	=2.981E 03	=1.303E 03	=1.678E 03	5.532E 03	9.145E=01	4.762E=04	0.000	0.000
8.392E 01	3.800E=01	0.000	3.085E 02	=2.985E 03	=1.306E 03	=1.678E 03	5.637E 03	9.789E=01	5.097E=04	0.000	0.000
8.673E 01	3.650E=01	0.000	3.168E 02	=2.988E 03	=1.310E 03	=1.678E 03	5.691E 03	9.402E=01	4.896E=04	0.000	0.000
8.959E 01	4.600E=01	0.000	3.268E 02	=2.994E 03	=1.315E 03	=1.678E 03	5.714E 03	1.185E 00	6.170E=04	0.000	0.000
8.959E 01	4.602E=01	0.000	3.268E 02	=2.994E 03	=1.315E 03	=1.678E 03	5.714E 03	1.185E 00	6.173E=04	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.092E 02	1.092E 02	2.517E-03	4.800E-02
4.041E 01	1.894E-01	1.094E 02	2.951E-03	6.592E-02
4.065E 01	4.595E 00	1.140E 02	3.028E-03	7.101E-02
4.112E 01	8.814E 00	1.228E 02	3.186E-03	7.704E-02
4.150E 01	6.735E 00	1.295E 02	3.321E-03	7.948E-02
4.163E 01	2.143E 00	1.317E 02	3.338E-03	8.010E-02
4.212E 01	8.505E 00	1.402E 02	3.319E-03	6.294E-02
4.246E 01	5.944E 00	1.461E 02	3.447E-03	6.023E-02
4.262E 01	2.575E 00	1.487E 02	3.495E-03	5.700E-02
4.360E 01	1.521E 01	1.639E 02	3.894E-03	4.014E-02
4.361E 01	1.382E-01	1.641E 02	3.431E-03	4.707E-02
4.368E 01	8.306E-01	1.649E 02	3.353E-03	4.755E-02
4.431E 01	7.600E 00	1.725E 02	3.445E-03	4.336E-02
4.480E 01	5.501E 00	1.780E 02	3.477E-03	4.136E-02
4.625E 01	1.423E 01	1.922E 02	3.803E-03	4.092E-02
4.626E 01	8.074E-02	1.923E 02	3.582E-03	4.448E-02
4.640E 01	1.089E 00	1.934E 02	3.545E-03	4.523E-02
4.711E 01	5.583E 00	1.990E 02	3.460E-03	4.618E-02
4.731E 01	1.549E 00	2.005E 02	3.437E-03	4.618E-02
4.811E 01	6.419E 00	2.069E 02	3.638E-03	4.077E-02
4.964E 01	1.201E 01	2.189E 02	3.100E-03	3.692E-02
5.108E 01	1.087E 01	2.298E 02	3.361E-03	2.763E-02
5.109E 01	7.140E-02	2.299E 02	2.987E-03	3.117E-02
5.162E 01	3.504E 00	2.334E 02	2.926E-03	2.830E-02
5.303E 01	8.482E 00	2.419E 02	2.823E-03	2.595E-02
5.513E 01	1.105E 01	2.529E 02	2.829E-03	2.003E-02
5.563E 01	2.473E 00	2.554E 02	2.886E-03	1.921E-02
5.576E 01	6.476E-01	2.560E 02	2.922E-03	1.866E-02
5.638E 01	1.402E 00	2.574E 02	2.788E-03	1.651E-02
5.714E 01	1.802E 00	2.592E 02	2.982E-03	1.166E-02
5.856E 01	3.160E 00	2.624E 02	2.727E-03	1.467E-02
5.862E 01	1.944E-01	2.626E 02	3.032E-03	1.330E-02
5.876E 01	9.139E-01	2.631E 02	3.027E-03	1.330E-02
5.884E 01	3.168E-01	2.634E 02	3.446E-03	1.181E-02
5.912E 01	1.109E 00	2.645E 02	3.019E-03	1.339E-02
5.934E 01	8.463E-01	2.654E 02	3.008E-03	1.251E-02
6.007E 01	2.789E 00	2.682E 02	2.890E-03	9.423E-03
6.109E 01	3.602E 00	2.718E 02	2.639E-03	1.494E-02
6.310E 01	7.140E 00	2.789E 02	3.011E-03	1.187E-02
6.452E 01	5.103E 00	2.840E 02	3.013E-03	1.803E-02
6.698E 01	7.990E 00	2.920E 02	3.411E-03	1.592E-02
6.736E 01	1.155E 00	2.932E 02	3.518E-03	1.504E-02
6.740E 01	1.171E-01	2.933E 02	3.541E-03	1.500E-02
6.760E 01	5.902E-01	2.939E 02	3.533E-03	1.494E-02
6.926E 01	5.145E 00	2.990E 02	3.366E-03	1.148E-02
6.993E 01	1.966E 00	3.010E 02	3.331E-03	1.046E-02
7.070E 01	2.099E 00	3.031E 02	3.254E-03	8.168E-03
7.142E 01	1.720E 00	3.048E 02	3.205E-03	6.839E-03
7.203E 01	1.296E 00	3.061E 02	3.166E-03	5.862E-03
7.298E 01	1.693E 00	3.078E 02	3.090E-03	4.248E-03
7.341E 01	6.553E-01	3.084E 02	3.068E-03	3.877E-03
7.494E 01	2.092E 00	3.105E 02	3.023E-03	3.253E-03
7.509E 01	1.783E-01	3.107E 02	3.011E-03	3.085E-03
7.584E 01	7.447E-01	3.115E 02	2.928E-03	2.158E-03
7.584E 01	1.219E-03	3.115E 02	2.928E-03	2.153E-03
7.717E 01	3.740E-01	3.118E 02	2.899E-03	1.947E-03

READING = 0061 BLOCK = 163 TIME = 246.362 MACH 6.0 PT = 745.499 TT = 2945.5

X	DDRAG	CDRAG	CF	HC
8.002E 01	5.617E-01	3.125E 02	2.872E-03	1.838E-03
8.392E 01	7.029E-01	3.132E 02	2.864E-03	1.922E-03
8.673E 01	3.665E-01	3.136E 02	2.843E-03	1.854E-03
8.959E 01	1.616E-01	3.137E 02	2.868E-03	2.199E-03
8.959E 01	0.000	3.137E 02	2.868E-03	2.200E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=1.	(LBF)
MEASURED THRUST	=51.	(LBF)
CALCULATED SPECIFIC IMPULSE	=2.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=152.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.0003	
MEASURED THRUST COEFFICIENT	=.0206	

REGENERATIVE=COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	2929.	(LBF)
NET THRUST	112.	(LBF)
SPECIFIC IMPULSE	331.	(LBF=SEC/LBM)
THRUST COEFFICIENT	0.0449	

MOMENTUM AND FORCES

INLET FRICTION DRAG	109.2	(LBF)
INLET MOMENTUM CHANGE	=706.3	(LBF)
COMBUSTOR FRICTION DRAG	184.0	(LBF)
COMBUSTOR STRUT DRAG	=12.38	(LBF)
COMBUSTOR MOMENTUM CHANGE	183.	(LBF)
NOZZLE FRICTION DRAG	20.57	(LBF)
NOZZLE STRUT DRAG	=0.00	(LBF)
NOZZLE MOMENTUM CHANGE	522.	(LBF)
NOZZLE PRESSURE INTEGRAL	543.	(LBF)
EXTERNAL FRICTION DRAG	59.28	(LBF)
EXTERNAL PRESSURE INTEGRAL	=1156.	(LBF)
TOTAL EXTERNAL DRAG	=1215.	(LBF)
TOTAL STRUT DRAG	=12.38	(LBF)
CAVITY FORCE	=1034.	(LBF)
CALCULATED LOAD CELL FORCE	=2249.	(LBF)
MEASURED LOAD CELL FORCE	=2300.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, 0.0, =148.7, =108.9,	

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.4957	
ADDITIVE DRAG COEFFICIENT	0.0975	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1516	
DELTA PT2	0.1152	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.3264	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1539	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8835	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9019	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9178	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8735	
ENTHALPY AT P0 = SUPERSONIC	0.51	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	31.50	(BTU/LBM)

COMBUSTOR

FUEL=AIR RATIO	0.0251	
EQUIVALENCE RATIO	0.765	
COMBUSTOR EFFICIENCY	0.509	
TOTAL PRESSURE RATIO	0.0731	
COMBUSTOR EFFECTIVENESS	0.4899	
INJECTOR DISCHARGE COEFFICIENTS	0.7212, 0.6009, 0.7591, 0.7230	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9569	
NOZZLE COEFFICIENT = CT	0.8818	
PROCESS EFFICIENCY	0.9111	
KINETIC ENERGY EFFICIENCY	0.9043	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	2.6185	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	37.502	(IN)
NOZZLE SHROUD TRAILING EDGE	75.842	(IN)
NOZZLE PLUG TRAILING EDGE	89.594	(IN)
STRUT LEADING EDGE	58.758	(IN)
STRUT TRAILING EDGE	67.358	(IN)
COMBUSTOR EXIT	67.358	(IN)

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	43.603	B
1C	44.300	
2A	51.078	D
2C	46.250	E
3A	56.368	
3B	58.553	
4	47.103	

Reading 61

t = 251.76 sec.

ϕ's were higher than planned.

03/04/75

READING = 0061 BLOCK = 169 TIME = 251.762 MACH 6.0 PT = 745.749 TT = 2993.1

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	745.749	2993	667.5(793)	1.2930	28.955	2578											
0.000	0.388	406	-31.5(97)	1.3989	28.954	987	5.991	5914	1.827	0.10605	13.526	0.4980	2536	9.747	187.5		
SPIKE TIP NS		2	0 6														
0.600	19.112	2993	667.5(793)	1.2929	28.954	2578											
0.600	17.495	2933	649.5(775)	1.2948	28.954	2554	0.372	949	2.078	0.10605	13.526	0.4980	2630	1.564	194.5		
WIND TUNNEL		3	0 0														
0.000	745.749	2993	667.5(793)	1.2930	28.955	2578											
0.000	0.414	413	-29.7(99)	1.3989	28.954	996	5.929	5907	1.827	0.11088	14.141	0.4980	2649	10.178	187.3		
SPIKE TIP NS		4	0 0														
0.600	19.112	2993	667.5(793)	1.2929	28.954	2578											
0.600	17.324	2927	647.5(773)	1.2950	28.954	2551	0.392	1000	2.078	0.11088	14.141	0.4980	2649	1.723	187.3		
INLET THROAT		5	0 6														
40.400	263.977	2865	629.0(755)	1.2971	28.954	2526											
40.400	15.189	1424	222.1(351)	1.3523	28.954	1818	2.481	4512	1.885	0.90174	13.526	0.0586	2125	63.233	157.1		
INLET UPNRSK		6	0 3														
40.400	263.977	2865	629.0(755)	1.2971	28.954	2526											
40.400	13.939	1368	207.4(336)	1.3556	28.954	1785	2.573	4593	1.885	0.81977	13.526	0.0644	2146	58.510	158.6		
INLET DNNRSK		7	0 4														
40.400	115.441	2865	629.0(755)	1.2971	28.954	2526											
40.400	98.885	2765	599.1(726)	1.3003	28.954	2485	0.492	1223	1.942	0.81977	13.526	0.0644	2146	15.585	158.6		
COMBUSTOR	0	8	1 4														
40.410	145.461	3308	631.8(931)	1.2772	27.821	2748											
40.410	28.652	2285	310.0(616)	1.3118	27.823	2314	1.734	4012	2.054	0.90599	13.591	0.0586	2125	56.493	156.3	0.15	0.69
COMBUSTOR	0	9	2 4														
40.643	134.004	3471	630.3(979)	1.2690	28.019	2796											
40.643	33.306	2549	334.8(693)	1.3006	28.024	2425	1.586	3845	2.068	0.91112	13.591	0.0582	2121	54.440	156.1	0.15	0.90
COMBUSTOR	0	10	3 202														
41.113	126.796	3536	627.0(998)	1.2655	28.109	2813											
41.113	41.892	2777	380.7(761)	1.2918	28.115	2519	1.394	3510	2.074	0.90703	13.591	0.0585	2111	49.480	155.3	0.15	1.00
COMBUSTOR	0	11	4 200														
41.500	121.519	3527	624.2(996)	1.2657	28.109	2810											
41.500	50.532	2917	424.8(809)	1.2870	28.114	2577	1.226	3159	2.076	0.89268	13.591	0.0594	2104	43.824	154.8	0.15	1.00
COMBUSTOR	0	12	5 200														
41.622	119.980	3525	623.3(995)	1.2658	28.109	2809											
41.622	52.775	2951	435.7(815)	1.2858	28.114	2591	1.183	3064	2.076	0.88632	13.591	0.0599	2104	42.205	154.8	0.15	1.00
COMBUSTOR	0	13	6 21														
42.113	105.913	3513	619.6(991)	1.2660	28.109	2805											
42.113	33.863	2738	366.6(750)	1.2931	28.114	2502	1.416	3544	2.084	0.85348	13.591	0.0622	2036	47.008	149.8	0.15	1.00
COMBUSTOR	0	14	7 21														
42.460	88.644	3505	616.9(989)	1.2661	28.108	2802											
42.460	36.526	2892	416.9(797)	1.2878	28.114	2566	1.233	3164	2.096	0.82490	13.591	0.0643	1938	40.556	142.6	0.15	1.00
COMBUSTOR	0	15	8 21														
42.613	82.091	3501	615.7(988)	1.2661	28.108	2800											
42.613	35.843	2927	427.8(807)	1.2865	28.114	2580	1.188	3066	2.101	0.81131	13.591	0.0654	1896	38.662	139.5	0.15	1.00
COMBUSTOR	0	16	9 21														
43.597	60.167	2770	614.0(810)	1.3024	25.885	2632											
43.597	31.482	2377	486.2(684)	1.3156	25.885	2451	1.032	2528	2.170	0.73306	13.655	0.0727	1659	28.803	121.5	0.29	0.11
COMBUSTOR	0	17	10 21														
43.607	62.164	2623	613.9(765)	1.3092	25.736	2576											
43.607	31.437	2227	486.4(639)	1.3225	25.736	2385	1.059	2525	2.153	0.73129	13.655	0.0729	1659	28.696	121.5	0.29	0.02
COMBUSTOR	0	18	11 21														
43.673	61.038	2599	613.0(758)	1.3103	25.714	2566											
43.673	31.149	2210	488.3(634)	1.3233	25.714	2378	1.051	2499	2.152	0.72979	13.655	0.0731	1643	28.336	120.3	0.29	0.00

READING = 0061 BLOCK = 169 TIME = 251.762 MACH 6.0 P(= 745.749 TT = 2993.1

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
44.310	53.035	2567	604.0(748)	1.3113	25.711	2552											
44.310	34.455	2315	522.6(667)	1.3197	25.710	2431	0.830	2018	2.159	0.70398	13.655	0.0757	1525	22.073	111.7	0.29	0.00
COMBUSTOR	0	20	13 21														
44.800	46.071	3735	596.1(1112)	1.2515	27.010	2933											
44.800	36.996	3573	537.1(1058)	1.2582	27.016	2876	0.597	1718	2.248	0.68624	13.655	0.0777	1465	18.320	107.3	0.29	0.81
COMBUSTOR	0	21	14 21														
46.250	51.292	2622	590.4(845)	1.3101	23.271	2709											
46.250	46.660	2564	569.4(824)	1.3120	23.271	2681	0.382	1024	2.354	0.64570	13.792	0.0834	1436	10.276	104.1	0.60	0.10
COMBUSTOR	0	22	15 21														
46.260	51.740	2385	590.2(765)	1.3209	23.060	2606											
46.260	46.727	2327	569.5(744)	1.3229	23.060	2576	0.395	1018	2.326	0.64518	13.792	0.0835	1435	10.202	104.0	0.60	0.01
COMBUSTOR	0	23	16 21														
46.393	52.454	2344	588.0(751)	1.3228	23.029	2587											
46.393	47.610	2289	568.7(731)	1.3247	23.029	2558	0.365	984	2.319	0.64067	13.792	0.0840	1447	9.601	104.9	0.60	0.00
COMBUSTOR	0	24	17 21														
47.107	50.139	2308	577.2(738)	1.3241	23.024	2569											
47.107	42.086	2210	543.0(704)	1.3274	23.024	2517	0.519	1307	2.317	0.61143	13.792	0.0881	1510	12.419	109.5	0.60	0.00
COMBUSTOR	0	25	18 21														
47.310	49.567	2299	574.4(735)	1.3244	23.024	2564											
47.310	40.521	2188	535.4(696)	1.3282	23.023	2505	0.558	1397	2.317	0.60321	13.792	0.0895	1525	13.098	110.6	0.60	0.00
COMBUSTOR	0	26	19 21														
48.110	45.106	2856	564.6(924)	1.2983	23.553	2798											
48.110	35.441	2701	506.1(868)	1.3036	23.553	2726	0.617	1682	2.385	0.55134	13.792	0.0977	1607	14.410	116.6	0.60	0.20
COMBUSTOR	0	27	20 13														
49.632	44.887	2259	547.6(721)	1.3253	23.055	2541											
49.632	18.825	1818	395.5(569)	1.3416	23.055	2293	1.203	2759	2.319	0.42637	13.792	0.1263	1792	18.283	129.9	0.60	0.01
COMBUSTOR	0	28	21 21														
51.072	38.091	2196	551.4(773)	1.3303	20.772	2645											
51.072	12.807	1665	351.2(573)	1.3508	20.771	2320	1.364	3165	2.522	0.35076	13.943	0.1552	1881	17.255	134.9	0.94	0.03
COMBUSTOR	0	29	22 10														
51.082	40.671	2083	551.3(731)	1.3356	20.684	2586											
51.082	12.765	1546	350.6(531)	1.3573	20.684	2246	1.411	3169	2.498	0.35030	13.943	0.1554	1881	17.252	134.9	0.94	0.00
COMBUSTOR	0	30	23 21														
51.613	40.920	2066	545.9(725)	1.3363	20.682	2576											
51.613	10.550	1455	318.6(498)	1.3617	20.682	2182	1.545	3372	2.494	0.32761	13.943	0.1662	1910	17.168	137.0	0.94	0.00
COMBUSTOR	0	31	24 5														
53.022	34.728	2291	532.2(807)	1.3253	20.884	2688											
53.022	10.512	1667	303.9(579)	1.3484	20.884	2327	1.452	3380	2.543	0.27922	13.943	0.1950	1980	14.665	142.0	0.94	0.06
COMBUSTOR	0	32	25 5														
55.122	29.880	2534	514.6(897)	1.3134	21.115	2799											
55.122	8.925	1883	265.0(648)	1.3372	21.115	2435	1.451	3534	2.586	0.22885	13.943	0.2379	2075	12.570	148.9	0.94	0.13
COMBUSTOR	0	33	26 3														
55.622	29.727	2537	510.7(898)	1.3132	21.126	2800											
55.622	8.125	1844	245.3(633)	1.3387	21.126	2410	1.512	3644	2.586	0.21950	13.943	0.2480	2095	12.430	150.3	0.94	0.14
COMBUSTOR	0	34	27 3														
55.760	29.471	2550	509.7(903)	1.3125	21.139	2806											
55.760	8.058	1855	243.0(637)	1.3381	21.139	2416	1.512	3652	2.589	0.21707	13.943	0.2508	2100	12.321	150.6	0.94	0.14
COMBUSTOR	0	35	28 5														
56.372	22.652	3005	505.0(1074)	1.2908	21.534	2992											
56.372	7.759	2343	241.7(814)	1.3141	21.535	2666	1.362	3630	2.658	0.16752	13.943	0.3250	2219	9.449	159.1	0.94	0.26
COMBUSTOR	0	36	29 5														
57.132	25.850	2757	499.7(980)	1.3025	21.332	2893											
57.132	5.286	1879	160.3(443)	1.3345	21.332	2417	1.705	4121	2.622	0.16007	13.943	0.3401	2246	10.251	161.1	0.94	0.20
COMBUSTOR	0	37	30 4														
58.557	22.889	2980	491.8(1064)	1.2916	21.540	2980											
58.557	5.579	2139	160.9(736)	1.3215	21.541	2554	1.593	4069	2.653	0.14795	13.943	0.3679	2289	9.356	164.2	0.94	0.26

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 4														
58.613	21.966	3064	491.6(1096)	1.2874	21.615	3012											
58.613	6.036	2271	176.6(785)	1.3155	21.617	2621	1.515	3970	2.664	0.14758	13.943	0.3689	2291	9.106	164.3	0.94	0.28
COMBUSTOR	0	39	32 2														
58.753	21.932	3064	490.9(1096)	1.2874	21.616	3012											
58.753	5.947	2264	173.2(782)	1.3158	21.618	2617	1.523	3987	2.664	0.14652	13.943	0.3715	2294	9.079	164.5	0.94	0.28
COMBUSTOR	0	40	33 6														
58.832	23.885	2928	490.5(1044)	1.2941	21.498	2960											
58.832	5.230	2044	144.4(701)	1.3257	21.499	2503	1.662	4162	2.644	0.14817	13.943	0.3674	2296	9.582	164.6	0.94	0.25
COMBUSTOR	0	41	34 4														
59.113	24.912	2875	489.2(1024)	1.2966	21.455	2939											
59.113	4.875	1948	128.5(666)	1.3301	21.456	2450	1.734	4249	2.635	0.14765	13.943	0.3687	2302	9.749	165.1	0.94	0.23
COMBUSTOR	0	42	35 3														
59.339	24.722	2898	488.2(1033)	1.2955	21.477	2948											
59.339	4.934	1975	128.3(676)	1.3287	21.478	2465	1.722	4243	2.638	0.14735	13.943	0.3695	2306	9.717	165.4	0.94	0.24
COMBUSTOR	0	43	36 4														
60.063	23.771	2979	484.8(1063)	1.2914	21.555	2979											
60.063	5.125	2076	130.3(712)	1.3237	21.556	2518	1.673	4212	2.648	0.14505	13.943	0.3753	2318	9.494	166.2	0.94	0.26
COMBUSTOR	0	44	37 4														
61.082	21.554	3207	480.1(1180)	1.2797	21.768	3062											
61.082	6.187	2415	161.5(837)	1.3082	21.771	2686	1.487	3993	2.675	0.14414	13.943	0.3777	2329	8.944	167.0	0.94	0.33
COMBUSTOR	0	45	38 5														
63.092	27.770	2819	471.3(1002)	1.2987	21.445	2914											
63.092	4.400	1808	81.4(615)	1.3360	21.446	2367	1.866	4417	2.618	0.14915	13.943	0.3650	2326	10.238	166.8	0.94	0.23
COMBUSTOR	0	46	39 5														
64.512	20.403	3574	465.1(1291)	1.2582	22.143	3177											
64.512	10.919	3133	277.2(1112)	1.2766	22.152	2996	1.024	3066	2.703	0.15319	13.943	0.3553	2323	7.300	166.6	0.94	0.43
COMBUSTOR	0	47	40 3														
66.977	19.320	3561	452.7(1285)	1.2584	22.159	3171											
66.977	10.104	3107	259.1(1101)	1.2774	22.168	2983	1.043	3112	2.706	0.14521	13.943	0.3749	2319	7.023	166.3	0.94	0.44
COMBUSTOR	0	48	41 3														
67.352	17.946	3564	450.6(1286)	1.2579	22.166	3171											
67.352	9.583	3123	262.8(1107)	1.2765	22.175	2990	1.025	3066	2.712	0.13500	13.943	0.4032	2318	6.431	166.3	0.94	0.44
COMBUSTOR REGEN		49	42 21														
67.352	17.946	3950	629.6(1446)	1.2358	22.139	3311											
67.352	13.858	3759	540.1(1367)	1.2459	22.153	3242	0.652	2115	2.760	0.13500	13.943	0.4032	2348	4.438	168.4	0.94	0.44
NOZZLE AE		50	43 3														
89.589	17.946	3564	450.6(1267)	1.2579	22.166	3171											
89.589	0.478	1538	-344.0(506)	1.3401	22.178	2150	2.933	6306	2.712	0.02810	13.943	1.9370	2970	2.754	213.0	0.94	0.44
NOZZLE PD		51	44 3														
89.589	17.946	3564	450.6(1267)	1.2579	22.166	3171											
89.589	0.388	1459	-371.7(478)	1.3443	22.178	2097	3.059	6415	2.712	0.02449	13.943	2.2226	3001	2.442	215.2	0.94	0.44
NOZZLE AE REGEN		52	45 4														
89.589	17.946	3950	629.6(1446)	1.2358	22.139	3311											
89.589	0.534	1806	-247.9(602)	1.3270	22.178	2318	2.858	6626	2.760	0.02810	13.943	1.9371	3136	2.894	224.9	0.94	0.44
NOZZLE PD REGEN		53	46 4														
89.589	17.946	3950	629.6(1446)	1.2358	22.139	3311											
89.589	0.388	1669	-297.4(552)	1.3334	22.178	2234	3.049	6811	2.760	0.02274	13.943	2.3942	3190	2.407	228.8	0.94	0.44
FICTIVE COMBUSTR		73	66 0														
67.352	263.977	5248	450.6(1953)	1.1654	23.937	3564											
67.352	0.388	1488	-1244.6(460)	1.3196	24.433	1999	4.608	9210	2.537	0.03801	13.943	1.4323	4134	5.440	296.5	0.94	1.00
PICTIVE NOZZLE		74	67 0														
89.589	16.110	3494	420.1(1257)	1.2610	22.168	3143											
89.589	0.495	1557	-337.4(512)	1.3391	22.178	2162	2.848	6157	2.713	0.02810	13.943	1.9371	2914	2.689	209.0	0.94	0.44

XABS	P=IB	P=OB	PDA	QOX	Q=IB	Q=OB	CA=ALL	P=IB/PSO	P=IB/PTO	P=OB/PSO	P=OB/PTO
6.981E=01	1.055E 00	0.000	=4.651E=01	0.000	0.000	0.000	2.470E=02	2.717E 00	1.415E=03	0.000	0.000
1.636E 01	1.055E 00	0.000	=3.515E 01	0.000	0.000	0.000	1.654E 02	2.717E 00	1.415E=03	0.000	0.000
3.070E 01	2.275E 00	0.000	=1.701E 02	0.000	0.000	0.000	5.053E 02	5.859E 00	3.051E=03	0.000	0.000
3.508E 01	3.979E 00	0.000	=3.728E 02	0.000	0.000	0.000	6.804E 02	1.025E 01	5.336E=03	0.000	0.000
3.555E 01	4.100E 00	0.000	=4.096E 02	0.000	0.000	0.000	7.013E 02	1.056E 01	5.498E=03	0.000	0.000
3.606E 01	3.930E 00	0.000	=4.504E 02	=2.317E 02	=2.317E 02	0.000	7.246E 02	1.012E 01	5.270E=03	0.000	0.000
3.648E 01	4.279E 00	0.000	=4.855E 02	=2.373E 02	=2.373E 02	0.000	7.443E 02	1.102E 01	5.738E=03	0.000	0.000
3.701E 01	4.240E 00	0.000	=5.326E 02	=2.447E 02	=2.447E 02	0.000	7.696E 02	1.092E 01	5.686E=03	0.000	0.000
3.749E 01	4.070E 00	5.676E 00	=6.330E 02	=2.517E 02	=2.517E 02	0.000	7.932E 02	1.048E 01	5.458E=03	1.462E 01	7.611E=03
3.750E 01	4.068E 00	5.723E 00	=6.331E 02	=2.518E 02	=2.518E 02	0.000	7.935E 02	1.048E 01	5.455E=03	1.474E 01	7.674E=03
3.803E 01	3.880E 00	9.970E 00	=6.285E 02	=2.600E 02	=2.600E 02	0.000	8.504E 02	9.993E 00	5.203E=03	2.568E 01	1.337E=02
3.816E 01	4.935E 00	1.102E 01	=6.236E 02	=2.623E 02	=2.623E 02	0.000	8.647E 02	1.271E 01	6.617E=03	2.839E 01	1.478E=02
3.875E 01	9.611E 00	1.380E 01	=6.134E 02	=5.749E 02	=2.754E 02	=9.949E 01	9.297E 02	2.475E 01	1.289E=02	3.555E 01	1.851E=02
3.901E 01	1.168E 01	1.503E 01	=6.116E 02	=3.906E 02	=2.830E 02	=1.076E 02	9.587E 02	3.008E 01	1.566E=02	3.871E 01	2.015E=02
3.950E 01	1.105E 01	1.735E 01	=6.082E 02	=4.449E 02	=3.008E 02	=1.441E 02	1.015E 03	2.846E 01	1.482E=02	4.467E 01	2.326E=02
3.962E 01	1.251E 01	1.792E 01	=6.061E 02	=4.544E 02	=3.060E 02	=1.485E 02	1.029E 03	3.223E 01	1.678E=02	4.617E 01	2.404E=02
4.000E 01	1.702E 01	2.387E 01	=5.980E 02	=4.857E 02	=3.239E 02	=1.618E 02	1.072E 03	4.385E 01	2.283E=02	6.147E 01	3.200E=02
4.040E 01	2.674E 01	3.016E 01	=5.933E 02	=5.211E 02	=3.452E 02	=1.759E 02	1.119E 03	6.888E 01	3.586E=02	7.768E 01	4.044E=02
4.041E 01	2.699E 01	3.032E 01	=5.930E 02	=5.220E 02	=3.458E 02	=1.762E 02	1.120E 03	6.951E 01	3.619E=02	7.806E 01	4.065E=02
4.064E 01	3.264E 01	3.397E 01	=5.924E 02	=5.431E 02	=3.588E 02	=1.844E 02	1.147E 03	8.406E 01	4.376E=02	8.750E 01	4.556E=02
4.111E 01	4.406E 01	3.972E 01	=5.939E 02	=5.872E 02	=3.865E 02	=2.007E 02	1.202E 03	1.135E 02	5.908E=02	1.023E 02	5.327E=02
4.150E 01	5.347E 01	4.759E 01	=5.938E 02	=6.251E 02	=4.109E 02	=2.142E 02	1.247E 03	1.377E 02	7.171E=02	1.226E 02	6.381E=02
4.162E 01	5.548E 01	5.007E 01	=5.919E 02	=6.373E 02	=4.189E 02	=2.184E 02	1.262E 03	1.429E 02	7.439E=02	1.290E 02	6.715E=02
4.211E 01	6.348E 01	4.250E 00	=6.507E 02	=6.877E 02	=4.526E 02	=2.350E 02	1.320E 03	1.635E 02	8.512E=02	1.095E 01	5.699E=03
4.246E 01	6.915E 01	3.902E 00	=7.428E 02	=7.242E 02	=4.776E 02	=2.466E 02	1.361E 03	1.781E 02	9.273E=02	1.005E 01	5.233E=03
4.261E 01	6.794E 01	3.750E 00	=7.828E 02	=7.403E 02	=4.887E 02	=2.516E 02	1.379E 03	1.750E 02	9.110E=02	9.658E 00	5.028E=03
4.360E 01	6.009E 01	2.873E 00	=1.005E 03	=8.766E 02	=5.625E 02	=3.142E 02	1.497E 03	1.548E 02	8.058E=02	7.399E 00	3.853E=03
4.361E 01	6.001E 01	2.864E 00	=1.005E 03	=8.784E 02	=5.633E 02	=3.151E 02	1.498E 03	1.546E 02	8.047E=02	7.377E 00	3.841E=03
4.367E 01	5.949E 01	2.806E 00	=1.020E 03	=8.896E 02	=5.683E 02	=3.214E 02	1.506E 03	1.532E 02	7.978E=02	7.228E 00	3.763E=03
4.431E 01	5.442E 01	1.449E 01	=1.132E 03	=1.013E 03	=6.181E 02	=3.947E 02	1.582E 03	1.401E 02	7.297E=02	3.733E 01	1.944E=02
4.480E 01	5.051E 01	2.348E 01	=1.187E 03	=1.121E 03	=6.574E 02	=4.634E 02	1.642E 03	1.301E 02	6.773E=02	6.047E 01	3.148E=02
4.625E 01	4.326E 01	5.007E 01	=1.185E 03	=1.451E 03	=7.706E 02	=6.808E 02	1.818E 03	1.114E 02	5.800E=02	1.289E 02	6.713E=02
4.626E 01	4.321E 01	5.025E 01	=1.186E 03	=1.454E 03	=7.713E 02	=6.823E 02	1.820E 03	1.113E 02	5.794E=02	1.294E 02	6.738E=02
4.639E 01	4.254E 01	5.268E 01	=1.173E 03	=1.484E 03	=7.812E 02	=7.024E 02	1.836E 03	1.096E 02	5.705E=02	1.357E 02	7.064E=02
4.711E 01	3.896E 01	4.921E 01	=1.107E 03	=1.633E 03	=8.334E 02	=7.999E 02	1.924E 03	1.004E 02	5.225E=02	1.164E 02	6.062E=02
4.731E 01	3.795E 01	4.309E 01	=1.090E 03	=1.671E 03	=8.478E 02	=8.235E 02	1.949E 03	9.774E 01	5.089E=02	1.110E 02	5.778E=02
4.811E 01	3.615E 01	3.473E 01	=1.003E 03	=1.807E 03	=9.032E 02	=9.038E 02	2.048E 03	9.310E 01	4.847E=02	8.945E 01	4.657E=02
4.963E 01	1.882E 01	1.882E 01	=8.082E 02	=2.041E 03	=1.002E 03	=1.039E 03	2.237E 03	4.848E 01	2.524E=02	4.848E 01	2.524E=02
5.107E 01	1.281E 01	1.281E 01	=6.908E 02	=2.255E 03	=1.087E 03	=1.168E 03	2.417E 03	3.298E 01	1.717E=02	3.298E 01	1.717E=02
5.108E 01	1.277E 01	1.277E 01	=6.902E 02	=2.256E 03	=1.087E 03	=1.169E 03	2.418E 03	3.288E 01	1.712E=02	3.288E 01	1.712E=02
5.161E 01	1.055E 01	1.055E 01	=6.580E 02	=2.333E 03	=1.116E 03	=1.216E 03	2.484E 03	2.717E 01	1.415E=02	2.717E 01	1.415E=02
5.302E 01	1.031E 01	1.031E 01	=5.808E 02	=2.524E 03	=1.189E 03	=1.335E 03	2.662E 03	2.656E 01	1.383E=02	2.656E 01	1.383E=02
5.512E 01	8.925E 00	8.925E 00	=4.749E 02	=2.768E 03	=1.283E 03	=1.485E 03	2.928E 03	2.299E 01	1.197E=02	2.299E 01	1.197E=02
5.562E 01	8.125E 00	8.125E 00	=4.528E 02	=2.822E 03	=1.303E 03	=1.519E 03	2.992E 03	2.093E 01	1.090E=02	2.093E 01	1.090E=02
5.576E 01	8.058E 00	8.058E 00	=4.470E 02	=2.838E 03	=1.309E 03	=1.529E 03	3.009E 03	2.075E 01	1.081E=02	2.075E 01	1.081E=02
5.637E 01	7.759E 00	7.759E 00	=3.274E 02	=2.902E 03	=1.333E 03	=1.569E 03	3.081E 03	1.998E 01	1.040E=02	1.998E 01	1.040E=02
5.713E 01	3.185E 00	7.387E 00	=2.980E 02	=2.976E 03	=1.363E 03	=1.613E 03	3.109E 03	8.203E 00	4.271E=03	1.903E 01	9.906E=03
5.856E 01	5.579E 00	5.579E 00	=2.519E 02	=3.086E 03	=1.413E 03	=1.673E 03	3.217E 03	1.437E 01	7.481E=03	1.437E 01	7.481E=03
5.861E 01	6.562E 00	5.509E 00	=2.503E 02	=3.090E 03	=1.415E 03	=1.675E 03	3.224E 03	1.690E 01	8.800E=03	1.419E 01	7.388E=03
5.875E 01	6.562E 00	5.332E 00	=2.468E 02	=3.099E 03	=1.420E 03	=1.679E 03	3.241E 03	1.690E 01	8.800E=03	1.373E 01	7.150E=03
5.883E 01	5.230E 00	5.230E 00	=2.446E 02	=3.104E 03	=1.422E 03	=1.682E 03	3.252E 03	1.347E 01	7.013E=03	1.347E 01	7.013E=03
5.911E 01	4.875E 00	4.875E 00	=2.380E 02	=3.122E 03	=1.431E 03	=1.691E 03	3.287E 03	1.256E 01	6.537E=03	1.256E 01	6.537E=03
5.934E 01	4.934E 00	4.934E 00	=2.333E 02	=3.137E 03	=1.438E 03	=1.699E 03	3.316E 03	1.271E 01	6.617E=03	1.271E 01	6.617E=03
6.006E 01	5.125E 00	5.125E 00	=2.196E 02	=3.183E 03	=1.458E 03	=1.725E 03	3.409E 03	1.320E 01	6.872E=03	1.320E 01	6.872E=03
6.108E 01	6.187E 00	6.187E 00	=2.065E 02	=3.249E 03	=1.483E 03	=1.766E 03	3.539E 03	1.594E 01	8.297E=03	1.594E 01	8.297E=03
6.309E 01	4.400E 00	4.400E 00	=2.053E 02	=3.372E 03	=1.523E 03	=1.849E 03	3.797E 03	1.133E 01	5.900E=03	1.133E 01	5.900E=03

READING = 0061 BLOCK = 169 TIME = 251.762 MACH 6.0 PT = 745.749 TT = 2995.1

XABS	P-IB	P-OB	PDA	QUX	Q-IB	Q-OB	CAWALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OB/PT0
6.451E 01	1.092E 01	1.092E 01	-2.053E 02	-3.458E 03	-1.549E 03	-1.910E 03	3.980E 03	2.812E 01	1.464E-02	2.812E 01	1.464E-02
6.698E 01	1.010E 01	1.010E 01	-2.053E 02	-3.652E 03	-1.598E 03	-2.034E 03	4.296E 03	2.602E 01	1.355E-02	2.602E 01	1.355E-02
6.735E 01	9.187E 00	9.979E 00	-2.053E 02	-3.660E 03	-1.606E 03	-2.054E 03	4.344E 03	2.366E 01	1.232E-02	2.570E 01	1.338E-02
6.739E 01	9.187E 00	9.966E 00	-2.053E 02	-3.663E 03	-1.607E 03	-2.056E 03	4.349E 03	2.366E 01	1.232E-02	2.567E 01	1.336E-02
6.759E 01	8.816E 00	9.900E 00	-2.053E 02	-3.678E 03	-1.611E 03	-2.067E 03	4.375E 03	2.270E 01	1.182E-02	2.550E 01	1.328E-02
6.925E 01	5.730E 00	4.620E 00	-1.245E 02	-3.784E 03	-1.640E 03	-2.143E 03	4.591E 03	1.476E 01	7.684E-03	1.190E 01	6.195E-03
6.992E 01	4.190E 00	4.792E 00	-2.662E 01	-3.819E 03	-1.649E 03	-2.170E 03	4.672E 03	1.079E 01	5.618E-03	1.234E 01	6.426E-03
7.069E 01	2.420E 00	3.654E 00	7.636E 01	-3.857E 03	-1.657E 03	-2.200E 03	4.767E 03	6.233E 00	3.245E-03	9.412E 00	4.900E-03
7.141E 01	1.889E 00	2.590E 00	1.436E 02	-3.891E 03	-1.663E 03	-2.228E 03	4.855E 03	4.866E 00	2.534E-03	6.671E 00	3.473E-03
7.202E 01	1.440E 00	2.062E 00	1.864E 02	-3.918E 03	-1.667E 03	-2.252E 03	4.929E 03	3.709E 00	1.931E-03	5.311E 00	2.765E-03
7.297E 01	1.010E 00	1.240E 00	2.317E 02	-3.953E 03	-1.671E 03	-2.282E 03	5.043E 03	2.601E 00	1.354E-03	3.194E 00	1.663E-03
7.340E 01	8.150E-01	1.172E 00	2.466E 02	-3.966E 03	-1.673E 03	-2.293E 03	5.096E 03	2.099E 00	1.093E-03	3.018E 00	1.572E-03
7.493E 01	6.283E-01	9.300E-01	2.881E 02	-4.003E 03	-1.678E 03	-2.325E 03	5.280E 03	1.618E 00	8.425E-04	2.395E 00	1.247E-03
7.508E 01	6.100E-01	8.400E-01	2.913E 02	-4.006E 03	-1.678E 03	-2.328E 03	5.297E 03	1.571E 00	8.180E-04	2.163E 00	1.126E-03
7.583E 01	5.649E-01	5.900E-01	3.118E 02	-4.023E 03	-1.681E 03	-2.342E 03	5.382E 03	1.455E 00	7.575E-04	1.004E 00	5.230E-04
7.584E 01	5.647E-01	3.876E-01	3.126E 02	-4.023E 03	-1.681E 03	-2.342E 03	5.382E 03	1.454E 00	7.572E-04	9.982E-01	5.197E-04
7.716E 01	4.850E-01	0.000	3.236E 02	-4.057E 03	-1.684E 03	-2.373E 03	5.434E 03	1.249E 00	6.504E-04	0.000	0.000
8.001E 01	8.650E-01	0.000	3.506E 02	-4.063E 03	-1.690E 03	-2.373E 03	5.532E 03	2.228E 00	1.160E-03	0.000	0.000
8.391E 01	6.800E-01	0.000	3.837E 02	-4.069E 03	-1.697E 03	-2.373E 03	5.657E 03	1.751E 00	9.118E-04	0.000	0.000
8.672E 01	5.300E-01	0.000	3.971E 02	-4.075E 03	-1.702E 03	-2.373E 03	5.691E 03	1.365E 00	7.107E-04	0.000	0.000
8.958E 01	6.950E-01	0.000	4.119E 02	-4.085E 03	-1.712E 03	-2.373E 03	5.714E 03	1.790E 00	9.319E-04	0.000	0.000
8.959E 01	6.953E-01	0.000	4.119E 02	-4.085E 03	-1.712E 03	-2.373E 03	5.714E 03	1.791E 00	9.324E-04	0.000	0.000

READING = 0061 BLOCK = 169 TIME = 251.762 MACH 6.0 PI = 745.749 TI = 2995.1

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.095E 02	1.095E 02	2.452E-03	4.646E+02
4.041E 01	1.874E+01	1.097E 02	2.913E-03	6.717E+02
4.064E 01	4.067E 00	1.142E 02	3.035E-03	7.115E+02
4.111E 01	8.879E 00	1.230E 02	3.187E-03	7.685E+02
4.150E 01	6.871E 00	1.299E 02	3.286E-03	8.052E+02
4.162E 01	2.044E 00	1.320E 02	3.303E-03	8.116E+02
4.211E 01	8.498E 00	1.405E 02	3.278E-03	6.384E+02
4.246E 01	6.033E 00	1.465E 02	3.408E-03	6.104E+02
4.261E 01	2.465E 00	1.490E 02	3.456E-03	5.830E+02
4.360E 01	1.454E 01	1.635E 02	3.863E-03	4.300E+02
4.361E 01	1.207E+01	1.636E 02	3.417E-03	5.025E+02
4.367E 01	7.538E+01	1.644E 02	3.348E-03	5.088E+02
4.431E 01	6.622E 00	1.710E 02	3.491E-03	4.602E+02
4.480E 01	4.230E 00	1.752E 02	3.579E-03	4.256E+02
4.625E 01	1.031E 01	1.855E 02	4.579E-03	2.716E+02
4.626E 01	5.356E+02	1.856E 02	3.960E-03	3.374E+02
4.639E 01	6.343E+01	1.862E 02	3.835E-03	3.492E+02
4.711E 01	3.639E 00	1.899E 02	3.628E-03	4.015E+02
4.731E 01	1.152E 00	1.910E 02	3.582E-03	4.119E+02
4.811E 01	4.770E 00	1.958E 02	3.438E-03	4.278E+02
4.963E 01	1.059E 01	2.064E 02	3.417E-03	3.347E+02
5.107E 01	1.096E 01	2.173E 02	3.442E-03	2.716E+02
5.108E 01	6.957E+02	2.174E 02	2.995E-03	3.126E+02
5.161E 01	3.331E 00	2.207E 02	2.827E-03	2.905E+02
5.302E 01	7.854E 00	2.286E 02	2.732E-03	2.813E+02
5.512E 01	1.006E 01	2.386E 02	2.815E-03	2.380E+02
5.562E 01	2.314E 00	2.410E 02	2.995E-03	2.103E+02
5.576E 01	6.507E+01	2.416E 02	2.998E-03	2.065E+02
5.637E 01	1.317E 00	2.429E 02	2.897E-03	1.911E+02
5.713E 01	1.726E 00	2.447E 02	3.109E-03	1.421E+02
5.856E 01	3.176E 00	2.478E 02	2.909E-03	1.528E+02
5.861E 01	1.949E+01	2.480E 02	3.085E-03	1.516E+02
5.875E 01	5.023E+01	2.485E 02	3.132E-03	1.479E+02
5.883E 01	3.128E+01	2.488E 02	3.419E-03	1.260E+02
5.911E 01	1.105E 00	2.499E 02	2.992E-03	1.505E+02
5.934E 01	8.334E+01	2.508E 02	2.948E-03	1.389E+02
6.006E 01	2.623E 00	2.534E 02	2.950E-03	1.412E+02
6.108E 01	3.597E 00	2.570E 02	3.019E-03	1.540E+02
6.309E 01	7.566E 00	2.646E 02	3.098E-03	1.227E+02
6.451E 01	4.944E 00	2.695E 02	3.090E-03	1.997E+02
6.698E 01	7.389E 00	2.769E 02	3.437E-03	1.674E+02
6.735E 01	1.124E 00	2.780E 02	3.489E-03	1.578E+02
6.739E 01	1.152E+01	2.781E 02	3.485E-03	1.574E+02
6.759E 01	5.794E+01	2.787E 02	3.477E-03	1.567E+02
6.925E 01	5.111E 00	2.838E 02	3.318E-03	1.256E+02
6.992E 01	1.982E 00	2.856E 02	3.288E-03	1.144E+02
7.069E 01	2.143E 00	2.880E 02	3.214E-03	9.044E+03
7.141E 01	1.762E 00	2.897E 02	3.159E-03	7.414E+03
7.202E 01	1.317E 00	2.910E 02	3.117E-03	6.271E+03
7.297E 01	1.719E 00	2.927E 02	3.044E-03	4.588E+03
7.340E 01	6.691E+01	2.934E 02	3.023E-03	4.193E+03
7.493E 01	2.134E 00	2.956E 02	2.978E-03	3.503E+03
7.508E 01	1.817E+01	2.957E 02	2.966E-03	3.521E+03
7.583E 01	7.712E+01	2.965E 02	2.892E-03	2.430E+03
7.584E 01	1.289E+03	2.965E 02	2.892E-03	2.424E+03
7.716E 01	4.142E+01	2.969E 02	2.887E-03	2.451E+03

READING # 0061 BLOCK = 169 TIME # 251.762 MACH 6.0 PT = 745.749 TT = 2993.1

X	DDRAG	CDRAG	CF	HC
8.001E 01	9.484E-01	2.979E 02	2.967E-03	3.745E-03
8.391E 01	1.106E 00	2.990E 02	2.907E-03	3.113E-03
8.672E 01	4.934E-01	2.995E 02	2.852E-03	2.572E-03
8.958E 01	2.056E-01	2.997E 02	2.883E-03	3.161E-03
8.959E 01	0.000	2.997E 02	2.884E-03	3.153E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	86.	(LBF)
MEASURED THRUST	120.	(LBF)
CALCULATED SPECIFIC IMPULSE	207.	(LBF*SEC/LBM)
MEASURED SPECIFIC IMPULSE	288.	(LBF*SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.0346	
MEASURED THRUST COEFFICIENT	0.0481	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	3077.	(LBF)
NET THRUST	250.	(LBF)
SPECIFIC IMPULSE	599.	(LBF*SEC/LBM)
THRUST COEFFICIENT	0.1001	

MOMENTUM AND FORCES

INLET FRICTION DRAG	109.5	(LBF)
INLET MOMENTUM CHANGE	*702.8	(LBF)
COMBUSTOR FRICTION DRAG	168.5	(LBF)
COMBUSTOR STRUT DRAG	*12.61	(LBF)
COMBUSTOR MOMENTUM CHANGE	194.	(LBF)
NOZZLE FRICTION DRAG	21.65	(LBF)
NOZZLE STRUT DRAG	*0.00	(LBF)
NOZZLE MOMENTUM CHANGE	596.	(LBF)
NOZZLE PRESSURE INTEGRAL	617.	(LBF)
EXTERNAL FRICTION DRAG	59.72	(LBF)
EXTERNAL PRESSURE INTEGRAL	*1161.	(LBF)
TOTAL EXTERNAL DRAG	*1220.	(LBF)
TOTAL STRUT DRAG	*12.61	(LBF)
CAVITY FORCE	*1050.	(LBF)
CALCULATED LOAD CELL FORCE	*2184.	(LBF)
MEASURED LOAD CELL FORCE	*2150.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, *155.0, *114.0,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	2.6125	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	37.496	(IN)
NOZZLE SHROUD TRAILING EDGE	75.837	(IN)
NOZZLE PLUG TRAILING EDGE	89.589	(IN)
STRUT LEADING EDGE	58.753	(IN)
STRUT TRAILING EDGE	67.352	(IN)
COMBUSTOR EXIT	67.352	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.4980	
ADDITIVE DRAG COEFFICIENT	0.0968	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1526	
DELTA PT2	0.1127	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.3540	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1548	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8948	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9053	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9067	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8594	
ENTHALPY AT P0 = SUPERSONIC	*4.85	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	28.21	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0309	
EQUIVALENCE RATIO	0.939	
COMBUSTOR EFFICIENCY	0.440	
TOTAL PRESSURE RATIO	0.0680	
COMBUSTOR EFFECTIVENESS	0.4361	

INJECTOR DISCHARGE COEFFICIENTS 0.7063, 0.5782, 0.7760, 0.7035

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9812	
NOZZLE COEFFICIENT = CT	0.9068	
PROCESS EFFICIENCY	0.9973	
KINETIC ENERGY EFFICIENCY	0.9593	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	43.597	B
1C	44.300	
2A	51.072	D
2C	46.250	E
3A	56.363	
3B	58.548	
4	47.097	

Reading 61

$t = 262.56$ sec.

ϕ's were higher than planned,

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	745.249	2993	667.6(793)	1.2930	28.955	2578											
0.000	0.388	406	=31.5(97)	1.3989	28.954	987	5.991	5915	1.827	0.10598	13.644	0.5026	2558	9.741	187.5		
SPIKE TIP NS		2	0 6														
0.600	19.087	2993	667.6(793)	1.2929	28.954	2578											
0.600	17.469	2934	649.6(775)	1.2948	28.954	2554	0.372	950	2.078	0.10598	13.644	0.5026	2652	1.565	194.4		
WIND TUNNEL		3	0 0														
0.000	745.249	2993	667.6(793)	1.2930	28.955	2578											
0.000	0.413	413	=29.7(99)	1.3989	28.954	996	5.930	5907	1.827	0.11072	14.254	0.5026	2670	10.164	187.3		
SPIKE TIP NS		4	0 0														
0.600	19.087	2993	667.6(793)	1.2929	28.954	2578											
0.600	17.301	2927	647.6(773)	1.2950	28.954	2551	0.392	1000	2.078	0.11072	14.254	0.5026	2670	1.720	187.3		
INLET THROAT		5	0 6														
40.400	243.627	2931	648.7(774)	1.2950	28.954	2553											
40.400	16.435	1523	248.2(377)	1.3468	28.954	1876	2.386	4477	1.897	0.90542	13.644	0.0588	2146	62.991	157.3		
INLET UPNRSK		6	0 3														
40.400	243.627	2931	648.7(774)	1.2950	28.954	2553											
40.400	14.081	1463	232.4(361)	1.3501	28.954	1842	2.478	4564	1.897	0.82311	13.644	0.0647	2169	58.386	159.0		
INLET DNNRSK		7	0 4														
40.400	115.802	2931	648.7(774)	1.2950	28.954	2553											
40.400	98.671	2825	617.1(743)	1.2983	28.954	2510	0.501	1258	1.948	0.82311	13.644	0.0647	2169	16.091	159.0		
COMBUSTOR	0	8	1 4														
40.410	144.418	3332	651.7(939)	1.2768	27.769	2760											
40.410	29.364	2319	332.3(627)	1.3111	27.772	2333	1.714	3998	2.059	0.90970	13.710	0.0588	2146	56.518	156.5	0.15	0.64
COMBUSTOR	0	9	2 4														
40.631	133.569	3489	650.4(986)	1.2689	27.959	2806											
40.631	33.981	2575	357.1(702)	1.3002	27.964	2440	1.570	3831	2.073	0.91470	13.710	0.0585	2142	54.456	156.2	0.15	0.84
COMBUSTOR	0	10	3 202														
41.101	124.171	3599	647.5(1019)	1.2630	28.103	2836											
41.101	42.738	2857	404.8(786)	1.2890	28.110	2552	1.365	3485	2.081	0.91095	13.710	0.0588	2128	49.332	155.2	0.15	1.00
COMBUSTOR	0	11	4 200														
41.500	118.706	3591	644.9(1016)	1.2632	28.103	2833											
41.500	52.034	3009	452.8(833)	1.2838	28.110	2614	1.186	3100	2.084	0.89636	13.710	0.0597	2117	43.184	154.4	0.15	1.00
COMBUSTOR	0	12	5 200														
41.611	117.348	3589	644.2(1016)	1.2633	28.103	2832											
41.611	55.946	3038	462.4(842)	1.2828	28.109	2626	1.149	3016	2.084	0.89053	13.710	0.0601	2116	41.739	154.3	0.15	1.00
COMBUSTOR	0	13	6 21														
42.101	102.823	3579	640.8(1012)	1.2634	28.103	2828											
42.101	35.087	2835	397.8(779)	1.2897	28.110	2543											
							1.371	3487	2.093	0.85827	13.710	0.0624	2046	46.511	149.3	0.15	1.00
COMBUSTOR	0	14	7 21														
42.460	86.317	3571	638.3(1010)	1.2634	28.103	2825											
42.460	36.902	2975	442.0(823)	1.2848	28.109	2600	1.205	3134	2.105	0.82855	13.710	0.0646	1946	40.350	141.9	0.15	1.00
COMBUSTOR	0	15	8 21														
42.601	80.615	3568	637.2(1009)	1.2634	28.103	2824											
42.601	36.314	3007	452.2(832)	1.2837	28.109	2613	1.165	3043	2.109	0.81589	13.710	0.0656	1907	38.581	139.1	0.15	1.00
COMBUSTOR	0	16	9 21														
43.586	59.794	2840	635.0(828)	1.2999	26.066	2654											
43.586	33.675	2483	518.6(713)	1.3118	26.066	2492	0.968	2413	2.167	0.73672	13.765	0.0730	1662	27.624	120.7	0.27	0.11
COMBUSTOR	0	17	10 21														
43.596	61.239	2699	634.9(784)	1.3064	25.922	2601											
43.596	33.649	2341	519.3(670)	1.3183	25.922	2433	0.988	2404	2.152	0.73608	13.765	0.0730	1658	27.501	120.4	0.27	0.02
COMBUSTOR	0	18	11 21														
43.661	60.267	2676	634.1(777)	1.3075	25.900	2591											
43.661	33.475	2326	521.4(666)	1.3191	25.900	2427	0.978	2374	2.150	0.73229	13.765	0.0734	1645	27.620	119.5	0.27	0.00

	P	T	h	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	ρ	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
44.310	53.493	2646	625.3(768)	1.3085	25.897	2578											
44.310	38.930	2453	563.2(706)	1.3148	25.897	2489	0.709	1764	2.156	0.70695	13.765	0.0760	1513	19.377	109.9	0.27	0.00
COMBUSTOR	0	20	13 21														
44.800	49.837	3539	617.7(1044)	1.2640	26.889	2876											
44.800	43.045	3432	579.9(1009)	1.2681	26.891	2836	0.464	1374	2.224	0.69021	13.765	0.0779	1446	14.739	105.1	0.27	0.66
COMBUSTOR	0	21	14 21														
46.250	55.692	2652	626.3(892)	1.3105	22.275	2785											
46.250	54.244	2636	620.1(886)	1.3111	22.275	2777	0.201	558	2.432	0.65182	13.972	0.0837	1405	5.649	100.6	0.73	0.08
COMBUSTOR	0	22	15 21														
46.260	55.893	2415	626.2(808)	1.3214	22.073	2681											
46.260	54.321	2398	620.0(802)	1.3220	22.073	2672	0.208	556	2.403	0.65177	13.972	0.0837	1406	5.634	100.6	0.73	0.01
COMBUSTOR	0	23	16 21														
46.381	56.672	2374	624.2(794)	1.3233	22.043	2662											
46.381	55.252	2360	618.8(789)	1.3237	22.043	2654	0.196	520	2.396	0.64772	13.972	0.0842	1418	5.239	101.5	0.73	0.00
COMBUSTOR	0	24	17 21														
47.096	52.636	2338	612.6(781)	1.3246	22.039	2643											
47.096	48.708	2294	596.5(765)	1.3261	22.039	2619	0.344	900	2.397	0.62077	13.972	0.0879	1487	8.685	106.4	0.73	0.00
COMBUSTOR	0	25	18 21														
47.310	49.635	4082	609.3(1411)	1.2323	23.695	3249											
47.310	46.745	4036	588.9(1393)	1.2344	23.699	3233	0.313	1011	2.545	0.60971	13.972	0.0895	1510	9.577	108.1	0.73	0.56
COMBUSTOR	0	26	19 21														
48.110	47.116	2576	597.5(864)	1.3131	22.275	2748											
48.110	39.316	2467	556.8(824)	1.3168	22.275	2693	0.530	1427	2.436	0.55727	13.972	0.0979	1606	12.362	114.9	0.73	0.08
COMBUSTOR	0	27	20 21														
49.621	43.244	2280	576.3(759)	1.3261	22.073	2610											
49.621	20.587	1894	437.2(620)	1.3401	22.073	2391	1.103	2638	2.405	0.43195	13.972	0.1263	1812	17.710	129.7	0.73	0.01
COMBUSTOR	0	28	21 21														
51.061	35.666	2211	586.0(841)	1.3319	19.185	2762											
51.061	15.754	1797	416.9(672)	1.3476	19.185	2505	1.161	2909	2.695	0.35707	14.194	0.1552	1909	16.140	134.5	1.23	0.03
COMBUSTOR	0	29	22 21														
51.071	37.666	2079	585.9(789)	1.3381	19.091	2691											
51.071	15.721	1660	416.5(619)	1.3545	19.091	2420	1.203	2912	2.667	0.35661	14.194	0.1554	1910	16.135	134.6	1.23	0.00
COMBUSTOR	0	30	23 2														
51.601	37.885	2053	578.6(778)	1.3392	19.086	2676											
51.601	13.942	1585	390.1(590)	1.3578	19.086	2368	1.297	3071	2.661	0.33351	14.194	0.1662	1948	15.914	137.2	1.23	0.00
COMBUSTOR	0	31	24 5														
53.011	33.310	2307	560.0(878)	1.3266	19.299	2808											
53.011	13.500	1839	367.9(687)	1.3442	19.299	2524	1.229	3100	2.714	0.28424	14.194	0.1950	2042	13.695	143.9	1.23	0.06
COMBUSTOR	0	32	25 5														
55.111	29.387	2593	536.0(992)	1.3126	19.553	2942											
55.111	11.212	2050	309.5(766)	1.3321	19.553	2635	1.278	3366	2.762	0.23297	14.194	0.2379	2168	12.187	152.8	1.23	0.13
COMBUSTOR	0	33	26 4														
55.611	28.696	2646	530.8(1013)	1.3100	19.603	2965											
55.611	10.662	2082	294.5(778)	1.3301	19.603	2650	1.298	3439	2.770	0.22345	14.194	0.2480	2194	11.941	154.6	1.23	0.15
COMBUSTOR	0	34	27 3														
55.760	28.582	2654	529.3(1016)	1.3096	19.611	2968											
55.760	10.394	2077	287.8(776)	1.3302	19.612	2647	1.313	3476	2.772	0.22076	14.194	0.2510	2202	11.926	155.1	1.23	0.15
COMBUSTOR	0	35	28 5														
56.361	25.384	3147	523.5(1217)	1.2856	20.012	3170											
56.361	9.315	2550	263.9(962)	1.3068	20.014	2877	1.253	3604	2.840	0.17054	14.194	0.3250	2365	9.551	166.6	1.23	0.26
COMBUSTOR	0	36	29 4														
57.121	24.982	2982	516.9(1149)	1.2937	19.890	3105											
57.121	6.783	2194	182.0(818)	1.3216	19.891	2692	1.521	4094	2.818	0.16295	14.194	0.3401	2397	10.367	168.9	1.23	0.22
COMBUSTOR	0	37	30 4														
58.546	24.330	3041	507.6(1173)	1.2905	19.955	3127											
58.546	6.007	2191	145.7(815)	1.3207	19.956	2685	1.585	4255	2.825	0.15066	14.194	0.3678	2443	9.963	172.1	1.23	0.24

READING = 0061 BLOCK = 181 TIME = 262.562 MACH 6.0 PT = 745.249 TT = 2993.4

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	K	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	51 4														
56.601	25.017	3160	507.4(1222)	1.2844	20.053	3172											
58.601	6.716	2361	170.9(891)	1.3122	20.056	2783	1.474	4103	2.841	0.15021	14.194	0.3689	2445	9.578	172.2	1.23	0.27
COMBUSTOR	0	39	32 2														
58.741	22.970	3161	506.6(1222)	1.2844	20.055	3172											
58.741	6.620	2374	167.3(888)	1.3124	20.057	2779	1.483	4121	2.841	0.14915	14.194	0.3716	2448	9.550	172.5	1.23	0.27
COMBUSTOR	0	40	33 6														
58.821	25.363	2989	506.1(1152)	1.2930	19.916	3106											
58.821	5.632	2095	127.6(777)	1.3250	19.917	2632	1.654	4352	2.816	0.15083	14.194	0.3674	2450	10.202	172.6	1.23	0.23
COMBUSTOR	0	41	34 4														
59.101	26.460	2934	504.4(1129)	1.2956	19.875	3084											
59.101	5.250	1996	109.7(738)	1.3295	19.876	2576	1.725	4445	2.806	0.15039	14.194	0.3685	2456	10.387	173.1	1.23	0.22
COMBUSTOR	0	42	35 4														
59.327	25.760	2990	502.9(1152)	1.2929	19.922	3106											
59.327	5.479	2073	115.5(768)	1.3257	19.923	2619	1.681	4403	2.814	0.15002	14.194	0.3694	2461	10.266	173.4	1.23	0.23
COMBUSTOR	0	43	36 4														
60.051	23.716	3168	497.6(1225)	1.2838	20.078	3173											
60.051	6.212	2327	135.5(868)	1.3138	20.080	2751	1.547	4256	2.838	0.14767	14.194	0.3753	2475	9.768	174.4	1.23	0.27
COMBUSTOR	0	44	37 4														
61.071	22.577	3322	490.3(1288)	1.2754	20.220	3228											
61.071	6.937	2548	151.4(957)	1.3037	20.224	2858	1.441	4118	2.854	0.14673	14.194	0.3777	2488	9.390	175.3	1.23	0.31
COMBUSTOR	0	45	38 6														
63.081	30.147	2853	478.6(1095)	1.2988	19.858	3046											
63.081	4.600	1812	45.6(665)	1.3374	19.859	2463	1.890	4655	2.782	0.15184	14.194	0.3650	2463	10.983	175.0	1.23	0.22
COMBUSTOR	0	46	39 5														
64.501	21.785	3645	470.7(1423)	1.2558	20.539	3329											
64.501	12.094	3224	275.3(1237)	1.2738	20.549	3152	0.992	3127	2.878	0.15595	14.194	0.3553	2480	7.578	174.7	1.23	0.39
COMBUSTOR	0	47	40 3														
66.965	20.630	3630	454.9(1415)	1.2561	20.556	3321											
66.965	10.779	3169	241.8(1213)	1.2757	20.567	3126	1.045	3265	2.880	0.14782	14.194	0.3749	2475	7.501	174.4	1.23	0.40
COMBUSTOR	0	48	41 3														
67.341	19.164	3632	452.4(1416)	1.2556	20.562	3320											
67.341	10.183	3182	244.4(1219)	1.2749	20.573	3131	1.030	3226	2.887	0.13743	14.194	0.4032	2475	6.889	174.4	1.23	0.40
COMBUSTOR REGEN	49	42 21															
67.341	19.164	3951	611.9(1559)	1.2372	20.541	3439											
67.341	13.127	3671	472.5(1433)	1.2517	20.559	3333	0.792	2641	2.929	0.13743	14.194	0.4032	2521	5.641	177.6	1.23	0.40
NOZZLE AE	50	43 3															
89.577	19.164	3632	452.4(1399)	1.2556	20.562	3320											
89.577	0.511	1573	*421.6(559)	1.3391	20.577	2256	2.931	6613	2.887	0.02861	14.194	1.9370	3171	2.940	223.4	1.23	0.40
NOZZLE PO	51	44 3															
89.577	19.164	3632	452.4(1399)	1.2556	20.562	3320											
89.577	0.388	1466	*462.0(518)	1.3447	20.577	2183	3.099	6764	2.887	0.02383	14.194	2.3250	3215	2.505	226.5	1.23	0.40
NOZZLE AE REGEN	52	45 4															
89.577	19.164	3951	611.9(1559)	1.2372	20.541	3439											
89.577	0.560	1795	*336.0(644)	1.3285	20.577	2400	2.869	6887	2.929	0.02861	14.194	1.9371	3316	3.062	233.6	1.23	0.40
NOZZLE PO REGEN	53	46 4															
89.577	19.164	3951	611.9(1559)	1.2372	20.541	3439											
89.577	0.388	1638	*396.7(583)	1.3358	20.577	2299	3.090	7104	2.929	0.02241	14.194	2.4726	3380	2.474	238.1	1.23	0.40
FICTIVE COMBUSTR	73	66 0															
67.341	243.627	5276	452.4(2123)	1.1733	22.126	3729											
67.341	0.388	1426	*1326.6(477)	1.3266	22.426	2048	4.607	9435	2.710	0.03726	14.194	1.4874	4310	5.463	303.7	1.23	1.00
FICTIVE NOZZLE	74	67 0															
89.577	17.257	3562	419.4(1385)	1.2588	20.565	3293											
89.577	0.529	1591	*414.8(565)	1.3382	20.577	2268	2.849	6461	2.888	0.02861	14.194	1.9371	3113	2.872	219.3	1.23	0.40

XABS	P=IB	P=OB	PDA	QOX	W=IB	Q=OB	CAMALL	P=IB/PSO	P=IB/PTO	P=OB/PSO	P=OB/PTO
6.981E=01	1.060E 00	0.000	=4.645E=01	0.000	0.000	0.000	2.470E=02	2.732E 00	1.422E=03	0.000	0.000
1.836E 01	1.060E 00	0.000	=3.531E 01	0.000	0.000	0.000	1.634E 02	2.732E 00	1.422E=03	0.000	0.000
3.070E 01	2.275E 00	0.000	=1.705E 02	0.000	0.000	0.000	5.053E 02	5.863E 00	3.053E=03	0.000	0.000
3.508E 01	4.009E 00	0.000	=3.741E 02	0.000	0.000	0.000	6.804E 02	1.033E 01	5.379E=03	0.000	0.000
3.555E 01	4.115E 00	0.000	=4.112E 02	0.000	0.000	0.000	7.013E 02	1.060E 01	5.522E=03	0.000	0.000
3.606E 01	3.965E 00	0.000	=4.522E 02	=2.288E 02	=2.288E 02	0.000	7.246E 02	1.022E 01	5.320E=03	0.000	0.000
3.648E 01	4.289E 00	0.000	=4.875E 02	=2.543E 02	=2.543E 02	0.000	7.443E 02	1.105E 01	5.756E=03	0.000	0.000
3.701E 01	4.250E 00	0.000	=5.347E 02	=2.416E 02	=2.416E 02	0.000	7.696E 02	1.095E 01	5.703E=03	0.000	0.000
3.748E 01	4.080E 00	5.672E 00	=6.340E 02	=2.483E 02	=2.483E 02	0.000	7.926E 02	1.051E 01	5.475E=03	1.462E 01	7.611E=03
3.748E 01	4.078E 00	5.720E 00	=6.341E 02	=2.484E 02	=2.484E 02	0.000	7.929E 02	1.051E 01	5.472E=03	1.474E 01	7.675E=03
3.803E 01	3.880E 00	1.009E 01	=6.293E 02	=2.567E 02	=2.567E 02	0.000	8.510E 02	9.999E 00	5.206E=03	2.599E 01	1.353E=02
3.815E 01	4.812E 00	1.105E 01	=6.245E 02	=2.587E 02	=2.587E 02	0.000	8.641E 02	1.240E 01	6.457E=03	2.848E 01	1.483E=02
3.875E 01	9.449E 00	1.395E 01	=6.128E 02	=1.447E 02	=2.717E 02	1.271E 02	9.304E 02	2.435E 01	1.268E=02	5.595E 01	1.872E=02
3.901E 01	1.146E 01	1.521E 01	=6.108E 02	=1.417E 02	=2.791E 02	1.374E 02	9.595E 02	2.953E 01	1.536E=02	3.919E 01	2.041E=02
3.950E 01	1.085E 01	1.758E 01	=6.054E 02	=1.890E 02	=2.962E 02	1.071E 02	1.015E 03	2.796E 01	1.456E=02	4.530E 01	2.359E=02
3.961E 01	1.226E 01	1.811E 01	=6.030E 02	=1.967E 02	=3.006E 02	1.039E 02	1.028E 03	3.160E 01	1.645E=02	4.667E 01	2.430E=02
4.000E 01	1.784E 01	2.433E 01	=5.943E 02	=2.257E 02	=3.182E 02	9.255E 01	1.073E 03	4.442E 01	2.313E=02	6.269E 01	3.264E=02
4.040E 01	2.760E 01	3.071E 01	=5.898E 02	=2.576E 02	=3.386E 02	8.098E 01	1.119E 03	7.113E 01	3.704E=02	7.914E 01	4.121E=02
4.041E 01	2.786E 01	3.087E 01	=5.896E 02	=2.584E 02	=3.391E 02	8.069E 01	1.120E 03	7.179E 01	3.738E=02	7.955E 01	4.142E=02
4.063E 01	3.357E 01	3.439E 01	=5.897E 02	=2.766E 02	=3.509E 02	7.434E 01	1.146E 03	8.652E 01	4.505E=02	8.861E 01	4.614E=02
4.110E 01	4.575E 01	3.972E 01	=5.944E 02	=3.164E 02	=3.773E 02	6.087E 01	1.201E 03	1.179E 02	6.139E=02	1.024E 02	5.330E=02
4.150E 01	5.610E 01	4.797E 01	=5.985E 02	=3.518E 02	=4.013E 02	4.950E 01	1.248E 03	1.446E 02	7.528E=02	1.236E 02	6.437E=02
4.161E 01	5.764E 01	5.025E 01	=5.979E 02	=3.618E 02	=4.082E 02	4.637E 01	1.261E 03	1.485E 02	7.735E=02	1.295E 02	6.743E=02
4.210E 01	6.447E 01	5.700E 00	=6.587E 02	=4.078E 02	=4.405E 02	3.269E 01	1.319E 03	1.661E 02	8.651E=02	1.469E 01	7.648E=03
4.246E 01	6.949E 01	4.316E 00	=7.529E 02	=4.428E 02	=4.657E 02	2.292E 01	1.361E 03	1.791E 02	9.324E=02	1.112E 01	5.792E=03
4.260E 01	6.885E 01	3.775E 00	=7.897E 02	=4.566E 02	=4.760E 02	1.913E 01	1.378E 03	1.774E 02	9.239E=02	9.728E 00	5.065E=03
4.359E 01	6.440E 01	2.950E 00	=1.021E 03	=5.866E 02	=5.529E 02	=3.371E 01	1.496E 03	1.660E 02	8.641E=02	7.603E 00	3.959E=03
4.360E 01	6.436E 01	2.942E 00	=1.024E 03	=5.862E 02	=5.537E 02	=3.451E 01	1.497E 03	1.658E 02	8.635E=02	7.581E 00	3.948E=03
4.366E 01	6.406E 01	2.887E 00	=1.036E 03	=5.990E 02	=5.591E 02	=3.986E 01	1.505E 03	1.651E 02	8.596E=02	7.441E 00	3.875E=03
4.431E 01	6.113E 01	1.673E 01	=1.162E 03	=7.193E 02	=6.151E 02	=1.041E 02	1.583E 03	1.575E 02	8.202E=02	4.312E 01	2.245E=02
4.480E 01	5.891E 01	2.718E 01	=1.225E 03	=8.247E 02	=6.598E 02	=1.649E 02	1.642E 03	1.518E 02	7.905E=02	7.004E 01	3.647E=02
4.625E 01	5.040E 01	5.809E 01	=1.226E 03	=1.158E 03	=7.902E 02	=3.683E 02	1.819E 03	1.299F 02	6.763E=02	1.497E 02	7.795E=02
4.626E 01	5.034E 01	5.830E 01	=1.224E 03	=1.161E 03	=7.911E 02	=3.697E 02	1.820E 03	1.297E 02	6.755E=02	1.502E 02	7.823E=02
4.638E 01	4.963E 01	6.087E 01	=1.212E 03	=1.189E 03	=8.015E 02	=3.874E 02	1.835E 03	1.279E 02	6.660E=02	1.569E 02	8.168E=02
4.710E 01	4.843E 01	5.198E 01	=1.140E 03	=1.350E 03	=8.618E 02	=4.880E 02	1.923E 03	1.171E 02	6.096E=02	1.340E 02	6.975E=02
4.731E 01	4.417E 01	4.932E 01	=1.116E 03	=1.396E 03	=8.795E 02	=5.164E 02	1.950E 03	1.138E 02	5.928E=02	1.271E 02	6.617E=02
4.811E 01	3.926E 01	3.937E 01	=1.017E 03	=1.561E 03	=9.435E 02	=6.172E 02	2.048E 03	1.012E 02	5.268E=02	1.015E 02	5.283E=02
4.962E 01	2.059E 01	2.059E 01	=7.999E 02	=1.857E 03	=1.056E 03	=8.013E 02	2.236E 03	5.305E 01	2.762E=02	5.305E 01	2.762E=02
5.106E 01	1.575E 01	1.575E 01	=6.650E 02	=2.157E 03	=1.153E 03	=9.841E 02	2.416E 03	4.060E 01	2.114E=02	4.060E 01	2.114E=02
5.107E 01	1.572E 01	1.572E 01	=6.642E 02	=2.139E 03	=1.154E 03	=9.854E 02	2.417E 03	4.051E 01	2.109E=02	4.051E 01	2.109E=02
5.160E 01	1.394E 01	1.394E 01	=6.232E 02	=2.243E 03	=1.187E 03	=1.056E 03	2.484E 03	3.593E 01	1.871E=02	3.593E 01	1.871E=02
5.301E 01	1.350E 01	1.350F 01	=5.218E 02	=2.507E 03	=1.269E 03	=1.238E 03	2.661E 03	3.479E 01	1.811E=02	3.479E 01	1.811E=02
5.511E 01	1.121E 01	1.121E 01	=3.857E 02	=2.847E 03	=1.374E 03	=1.473E 03	2.927E 03	2.889E 01	1.505E=02	2.889E 01	1.505E=02
5.561E 01	1.066E 01	1.066E 01	=3.573E 02	=2.921E 03	=1.396E 03	=1.524E 03	2.991E 03	2.748E 01	1.431E=02	2.748E 01	1.431E=02
5.576E 01	1.039E 01	1.039F 01	=3.491E 02	=2.942E 03	=1.403E 03	=1.539E 03	3.010E 03	2.678E 01	1.395E=02	2.678E 01	1.395E=02
5.636E 01	9.315E 00	9.315E 00	=1.844E 02	=3.025E 03	=1.429E 03	=1.595E 03	3.051E 03	2.400E 01	1.250E=02	2.400E 01	1.250E=02
5.712E 01	5.616E 00	7.950F 00	=1.509E 02	=3.118E 03	=1.463E 03	=1.654E 03	3.109E 03	1.447E 01	7.535E=03	2.049E 01	1.067E=02
5.855E 01	6.007E 00	6.007E 00	=1.013E 02	=3.250E 03	=1.520E 03	=1.730E 03	3.217E 03	1.548E 01	8.060E=03	1.548E 01	8.060E=03
5.860E 01	7.500E 00	5.932E 00	=9.957E 01	=3.254E 03	=1.522E 03	=1.732E 03	3.224E 03	1.933E 01	1.006E=02	1.529E 01	7.959E=03
5.874E 01	7.500E 00	5.741E 00	=9.577E 01	=3.264E 03	=1.527E 03	=1.738E 03	3.241E 03	1.933E 01	1.006E=02	1.479E 01	7.703E=03
5.882E 01	5.632E 00	5.632E 00	=9.348E 01	=3.271E 03	=1.530E 03	=1.741F 03	3.252E 03	1.451E 01	7.557E=03	1.451E 01	7.557E=03
5.910E 01	5.250E 00	5.250E 00	=8.638E 01	=3.295E 03	=1.539E 03	=1.755E 03	3.287E 03	1.353E 01	7.045E=03	1.353E 01	7.045E=03
5.933E 01	5.479E 00	5.479F 00	=8.116E 01	=3.316E 03	=1.547E 03	=1.770E 03	3.316E 03	1.412E 01	7.352E=03	1.412E 01	7.352E=03
6.005E 01	6.212E 00	6.212E 00	=6.531E 01	=3.392E 03	=1.569E 03	=1.823E 03	3.409E 03	1.601E 01	8.336E=03	1.601E 01	8.336E=03
6.107E 01	6.937E 00	6.937E 00	=5.008E 01	=3.496E 03	=1.596E 03	=1.899E 03	3.539E 03	1.788E 01	9.309E=03	1.788E 01	9.309E=03
6.308E 01	4.600E 00	4.600F 00	=4.874E 01	=3.662E 03	=1.639E 03	=2.023E 03	3.797E 03	1.185E 01	6.172E=03	1.185E 01	6.172E=03

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.450E 01	1.209E 01	1.209E 01	-4.874E 01	-3.774E 03	-1.665E 03	-2.109E 03	3.980E 03	3.116E 01	1.623E-02	3.116E 01	1.623E-02
6.696E 01	1.078E 01	1.078E 01	-4.874E 01	-3.998E 03	-1.714E 03	-2.284E 03	4.296E 03	2.778E 01	1.446E-02	2.778E 01	1.446E-02
6.734E 01	9.787E 00	1.058E 01	-4.874E 01	-4.034E 03	-1.722E 03	-2.312E 03	4.344E 03	2.522E 01	1.313E-02	2.726E 01	1.419E-02
6.738E 01	9.787E 00	1.056E 01	-4.874E 01	-4.038E 03	-1.723E 03	-2.315E 03	4.349E 03	2.522E 01	1.313E-02	2.720E 01	1.417E-02
6.758E 01	9.381E 00	1.045E 01	-4.874E 01	-4.056E 03	-1.727E 03	-2.329E 03	4.375E 03	2.418E 01	1.259E-02	2.693E 01	1.402E-02
6.924E 01	6.010E 00	4.980E 00	3.703E 01	-4.179E 03	-1.756E 03	-2.424E 03	4.591E 03	1.549E 01	8.064E-03	1.283E 01	6.682E-03
6.991E 01	4.354E 00	4.845E 00	1.392E 02	-4.217E 03	-1.764E 03	-2.453E 03	4.672E 03	1.122E 01	5.842E-03	1.249E 01	6.501E-03
7.068E 01	2.450E 00	3.721E 00	2.444E 02	-4.256E 03	-1.772E 03	-2.485E 03	4.767E 03	6.314E 00	3.287E-03	9.589E 00	4.993E-03
7.140E 01	1.938E 00	2.670E 00	3.131E 02	-4.292E 03	-1.777E 03	-2.515E 03	4.855E 03	4.995E 00	2.601E-03	6.880E 00	3.583E-03
7.201E 01	1.505E 00	2.181E 00	3.576E 02	-4.321E 03	-1.781E 03	-2.540E 03	4.929E 03	3.878E 00	2.019E-03	5.621E 00	2.927E-03
7.296E 01	1.058E 00	1.420E 00	4.060E 02	-4.358E 03	-1.786E 03	-2.572E 03	5.043E 03	2.725E 00	1.419E-03	3.659E 00	1.905E-03
7.339E 01	8.550E-01	1.329E 00	4.222E 02	-4.372E 03	-1.788E 03	-2.584E 03	5.096E 03	2.203E 00	1.147E-03	3.425E 00	1.783E-03
7.492E 01	6.319E-01	1.005E 00	4.667E 02	-4.411E 03	-1.793E 03	-2.618E 03	5.280E 03	1.628E 00	8.479E-04	2.590E 00	1.349E-03
7.507E 01	6.100E-01	9.117E-01	4.700E 02	-4.414E 03	-1.793E 03	-2.620E 03	5.297E 03	1.572E 00	8.185E-04	2.349E 00	1.223E-03
7.582E 01	6.569E-01	4.450E-01	4.925E 02	-4.431E 03	-1.796E 03	-2.635E 03	5.382E 03	1.693E 00	8.814E-04	1.147E 00	5.971E-04
7.582E 01	6.571E-01	4.425E-01	4.933E 02	-4.431E 03	-1.796E 03	-2.635E 03	5.382E 03	1.693E 00	8.818E-04	1.140E 00	5.938E-04
7.719E 01	7.400E-01	0.000	5.081E 02	-4.465E 03	-1.799E 03	-2.666E 03	5.434E 03	1.907E 00	9.930E-04	0.000	0.000
8.000E 01	9.850E-01	0.000	5.426E 02	-4.472E 03	-1.806E 03	-2.666E 03	5.532E 03	2.538E 00	1.322E-03	0.000	0.000
8.390E 01	7.700E-01	0.000	5.801E 02	-4.481E 03	-1.815E 03	-2.666E 03	5.637E 03	1.984E 00	1.033E-03	0.000	0.000
8.671E 01	6.150E-01	0.000	5.955E 02	-4.488E 03	-1.823E 03	-2.666E 03	5.691E 03	1.585E 00	8.252E-04	0.000	0.000
8.957E 01	8.000E-01	0.000	6.126E 02	-4.502E 03	-1.836E 03	-2.666E 03	5.714E 03	2.062E 00	1.073E-03	0.000	0.000
8.958E 01	8.004E-01	0.000	6.126E 02	-4.502E 03	-1.836E 03	-2.666E 03	5.714E 03	2.063E 00	1.074E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.098E 02	1.098E 02	2.521E-03	4.850E-02
4.041E 01	1.908E-01	1.100E 02	2.951E-03	6.744E-02
4.063E 01	4.275E 00	1.143E 02	3.047E-03	7.172E-02
4.110E 01	8.901E 00	1.232E 02	3.198E-03	7.731E-02
4.150E 01	7.078E 00	1.303E 02	3.325E-03	8.019E-02
4.161E 01	1.842E 00	1.321E 02	3.340E-03	8.056E-02
4.210E 01	8.507E 00	1.406E 02	3.321E-03	8.402E-02
4.246E 01	6.266E 00	1.469E 02	3.445E-03	8.031E-02
4.260E 01	2.287E 00	1.492E 02	3.488E-03	5.783E-02
4.359E 01	1.435E 01	1.639E 02	3.877E-03	4.325E-02
4.360E 01	1.217E-01	1.636E 02	3.466E-03	5.000E-02
4.366E 01	7.362E-01	1.644E 02	3.402E-03	5.057E-02
4.431E 01	6.340E 00	1.707E 02	3.583E-03	4.441E-02
4.480E 01	3.685E 00	1.744E 02	3.713E-03	3.910E-02
4.625E 01	7.897E 00	1.823E 02	5.051E-03	1.906E-02
4.626E 01	3.260E-02	1.823E 02	4.380E-03	2.363E-02
4.638E 01	3.477E-01	1.827E 02	4.276E-03	2.376E-02
4.710E 01	2.488E 00	1.852E 02	3.857E-03	3.347E-02
4.731E 01	9.216E-01	1.861E 02	3.775E-03	3.555E-02
4.811E 01	4.386E 00	1.905E 02	4.320E-03	3.076E-02
4.962E 01	1.071E 01	2.012E 02	3.271E-03	3.692E-02
5.106E 01	1.047E 01	2.117E 02	3.608E-03	2.919E-02
5.107E 01	6.764E-02	2.117E 02	3.083E-03	3.447E-02
5.160E 01	3.194E 00	2.149E 02	2.912E-03	3.369E-02
5.301E 01	7.509E 00	2.224E 02	2.801E-03	3.271E-02
5.511E 01	9.769E 00	2.322E 02	2.868E-03	2.760E-02
5.561E 01	2.283E 00	2.345E 02	3.071E-03	2.487E-02
5.576E 01	7.024E-01	2.352E 02	3.101E-03	2.425E-02
5.636E 01	1.309E 00	2.365E 02	2.956E-03	2.182E-02
5.712E 01	1.779E 00	2.383E 02	3.166E-03	1.715E-02
5.855E 01	3.384E 00	2.417E 02	3.017E-03	1.642E-02
5.860E 01	2.101E-01	2.419E 02	3.087E-03	1.713E-02
5.874E 01	5.301E-01	2.424E 02	3.151E-03	1.662E-02
5.882E 01	3.322E-01	2.427E 02	3.422E-03	1.401E-02
5.910E 01	1.176E 00	2.439E 02	2.982E-03	1.516E-02
5.933E 01	8.818E-01	2.448E 02	2.940E-03	1.570E-02
6.005E 01	2.744E 00	2.475E 02	2.975E-03	1.663E-02
6.107E 01	3.796E 00	2.513E 02	3.088E-03	1.708E-02
6.308E 01	8.154E 00	2.595E 02	3.120E-03	1.332E-02
6.450E 01	5.243E 00	2.647E 02	3.081E-03	2.229E-02
6.696E 01	7.752E 00	2.725E 02	3.423E-03	1.858E-02
6.734E 01	1.197E 00	2.737E 02	3.474E-03	1.751E-02
6.738E 01	1.228E-01	2.738E 02	3.466E-03	1.743E-02
6.758E 01	6.178E-01	2.744E 02	3.459E-03	1.734E-02
6.924E 01	5.446E 00	2.799E 02	3.310E-03	1.368E-02
6.991E 01	2.101E 00	2.820E 02	3.276E-03	1.241E-02
7.068E 01	2.253E 00	2.842E 02	3.203E-03	9.738E-03
7.140E 01	1.847E 00	2.861E 02	3.151E-03	8.038E-03
7.201E 01	1.388E 00	2.874E 02	3.115E-03	6.903E-03
7.296E 01	1.841E 00	2.893E 02	3.051E-03	5.216E-03
7.339E 01	7.260E-01	2.900E 02	3.030E-03	4.762E-03
7.492E 01	2.288E 00	2.923E 02	2.979E-03	3.851E-03
7.507E 01	1.920E-01	2.925E 02	2.967E-03	3.649E-03
7.582E 01	8.372E-01	2.933E 02	2.910E-03	2.867E-03
7.582E 01	1.446E-03	2.933E 02	2.909E-03	2.863E-03
7.715E 01	5.079E-01	2.938E 02	2.950E-03	3.559E-03

READING = 0061 BLOCK = 161 TIME = 262.562 MACH 6.0 P1 = 745.249 T1 = 2993.4

X	DDRAG	CDRAG	CF	HC
8.000E 01	1.140E 00	2.950E 02	2.979E-03	4.363E-03
8.390E 01	1.225E 00	2.962E 02	2.919E-03	3.615E-03
8.671E 01	5.498E-01	2.968E 02	2.869E-03	3.045E-03
8.957E 01	2.302E-01	2.970E 02	2.898E-03	3.681E-03
8.958E 01	0.000	2.970E 02	2.898E-03	3.682E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	267.	(LBF)
MEASURED THRUST	328.	(LBF)
CALCULATED SPECIFIC IMPULSE	485.	(LBF*SEC/LBM)
MEASURED SPECIFIC IMPULSE	596.	(LBF*SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.1070	
MEASURED THRUST COEFFICIENT	0.1315	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	3255.	(LBF)
NET THRUST	410.	(LBF)
SPECIFIC IMPULSE	744.	(LBF*SEC/LBM)
THRUST COEFFICIENT	0.1641	

MOMENTUM AND FORCES

INLET FRICTION DRAG	109.8	(LBF)
INLET MOMENTUM CHANGE	*699.7	(LBF)
COMBUSTOR FRICTION DRAG	163.8	(LBF)
COMBUSTOR STRUT DRAG	*11.06	(LBF)
COMBUSTOR MOMENTUM CHANGE	329.	(LBF)
NOZZLE FRICTION DRAG	23.31	(LBF)
NOZZLE STRUT DRAG	*0.00	(LBF)
NOZZLE MOMENTUM CHANGE	638.	(LBF)
NOZZLE PRESSURE INTEGRAL	661.	(LBF)
EXTERNAL FRICTION DRAG	61.45	(LBF)
EXTERNAL PRESSURE INTEGRAL	*1181.	(LBF)
TOTAL EXTERNAL DRAG	*1243.	(LBF)
TOTAL STRUT DRAG	*11.06	(LBF)
CAVITY FORCE	*1125.	(LBF)
CALCULATED LOAD CELL FORCE	*2101.	(LBF)
MEASURED LOAD CELL FORCE	*2040.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, 0.0, *1600.0, *119.8,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	2.6005	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	37.485	(IN)
NOZZLE SHROUD TRAILING EDGE	75.825	(IN)
NOZZLE PLUG TRAILING EDGE	89.577	(IN)
STRUT LEADING EDGE	58.741	(IN)
STRUT TRAILING EDGE	67.341	(IN)
COMBUSTOR EXIT	67.341	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.5026	
ADDITIVE DRAG COEFFICIENT	0.0955	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1531	
DELTA PT2	0.1166	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.3269	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1554	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8814	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9012	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9256	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8814	
ENTHALPY AT P0 = SUPERSONIC	1.66	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	32.56	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0403	
EQUIVALENCE RATIO	1.227	
COMBUSTOR EFFICIENCY	0.398	
TOTAL PRESSURE RATIO	0.0787	
COMBUSTOR EFFECTIVENESS	0.4940	
INJECTOR DISCHARGE COEFFICIENTS	0.7048, 0.4973, 0.7721, 0.7008	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9816	
NOZZLE COEFFICIENT = CT	0.9083	
PROCESS EFFICIENCY	0.9977	
KINETIC ENERGY EFFICIENCY	0.9603	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	43.586	B
1C	44.300	
2A	51.061	D
2C	46.250	E
3A	56.351	
3B	58.536	
4	47.086	

Reading 61

t = 273.36 sec.

ϕ's were higher than planned.

Test cell pressure was high which resulted in slightly increased AIM nozzle pressures.

03/04/75

READING = 0061 BLOCK = 193 TIME = 273.362 MACH 6.0 PT = 745.749 TT = 3001.5 PAGE 1

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H	GAMMA	MOLWT	SONV	MACH	VFL	S	W/A	R	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	745.749	3001	670.0(795)	1.2928	28.955	2581											
0.000	0.390	408	-31.1(98)	1.3989	28.954	989	5.987	5923	1.828	0.10609	13.415	0.4937	2519	9.765	187.8		
SPIKE TIP NS		2	0 6														
0.600	19.062	3001	670.0(795)	1.2926	28.954	2581											
0.600	17.433	2941	651.8(777)	1.2946	28.954	2557	0.374	955	2.079	0.10609	13.415	0.4937	2603	1.575	194.0		
WIND TUNNEL		3	0 0														
0.000	745.749	3001	670.0(795)	1.2928	28.955	2581											
0.000	0.413	414	-29.5(99)	1.3989	28.954	998	5.931	5916	1.828	0.11040	13.961	0.4937	2619	10.151	187.6		
SPIKE TIP NS		4	0 0														
0.600	19.062	3001	670.0(795)	1.2926	28.954	2581											
0.600	17.279	2935	650.0(776)	1.2948	28.954	2555	0.392	1001	2.079	0.11040	13.961	0.4937	2619	1.717	187.6		
INLET THROAT		5	0 6														
40.400	252.216	2862	628.0(754)	1.2972	28.954	2525											
40.400	15.498	1447	228.1(357)	1.3510	28.954	1832	2.442	4474	1.888	0.89786	13.415	0.0583	2097	62.421	156.3		
INLET UPNRSK		6	0 3														
40.400	252.216	2862	628.0(754)	1.2972	28.954	2525											
40.400	13.290	1390	213.1(342)	1.3543	28.954	1798	2.534	4556	1.888	0.81624	13.415	0.0642	2118	57.798	157.9		
INLET DNNRSK		7	0 4														
40.400	114.252	2862	628.0(754)	1.2972	28.954	2525											
40.400	97.640	2760	597.7(724)	1.3004	28.954	2483	0.496	1232	1.942	0.81624	13.415	0.0642	2118	15.623	157.9		
COMBUSTOR	0	8	1 4														
40.410	139.144	3335	631.3(939)	1.2758	27.827	2757											
40.410	29.986	2355	321.8(637)	1.3090	27.630	2347	1.677	3935	2.061	0.90216	13.482	0.0583	2097	55.167	155.5	0.15	0.71
COMBUSTOR	0	9	2 4														
40.652	127.726	3510	629.8(992)	1.2669	28.041	2808											
40.652	35.497	2649	351.7(723)	1.2966	28.047	2467	1.512	3730	2.075	0.90734	13.482	0.0580	2090	52.596	155.1	0.15	0.94
COMBUSTOR	0	10	3 202														
41.122	120.940	3546	626.9(1002)	1.2649	28.094	2817											
41.122	45.330	2866	404.9(789)	1.2886	28.100	2556	1.304	3332	2.079	0.90289	13.482	0.0583	2073	46.756	153.8	0.15	1.00
COMBUSTOR	0	11	4 200														
41.500	115.007	3538	624.4(1000)	1.2651	28.094	2814											
41.500	54.134	3009	450.2(834)	1.2837	28.100	2614	1.129	2952	2.082	0.88890	13.482	0.0592	2058	40.781	152.7	0.15	1.00
COMBUSTOR	0	12	5 200														
41.632	113.234	3536	623.5(999)	1.2652	28.095	2814											
41.632	56.058	3040	460.3(843)	1.2826	28.100	2627	1.088	2858	2.083	0.88201	13.482	0.0597	2054	39.177	152.4	0.15	1.00
COMBUSTOR	0	13	6 21														
42.122	99.322	3525	620.2(996)	1.2653	28.094	2810											
42.122	37.143	2848	399.1(784)	1.2892	28.100	2549	1.305	3326	2.091	0.84896	13.482	0.0620	1983	43.880	147.1	0.15	1.00
COMBUSTOR	0	14	7 21														
42.460	84.712	3518	617.7(994)	1.2654	28.094	2807											
42.460	38.498	2968	437.2(821)	1.2850	28.100	2598	1.157	3006	2.102	0.82119	13.482	0.0641	1892	38.360	140.3	0.15	1.00
COMBUSTOR	0	15	8 21														
42.622	78.653	3514	616.5(992)	1.2654	28.094	2805											
42.622	37.972	3004	448.9(832)	1.2837	28.099	2612	1.109	2896	2.107	0.80674	13.482	0.0652	1848	36.308	137.1	0.15	1.00
COMBUSTOR	0	16	9 21														
43.607	60.254	2780	613.4(805)	1.3018	26.192	2621											
43.607	36.589	2473	514.1(707)	1.3120	26.192	2481	0.898	2230	2.151	0.72803	13.529	0.0726	1618	25.227	119.6	0.26	0.12
COMBUSTOR	0	17	10 21														
43.617	61.646	2641	613.4(762)	1.3081	26.050	2568											
43.617	36.575	2332	514.4(664)	1.3184	26.050	2422	0.918	2225	2.136	0.72625	13.529	0.0727	1617	25.111	119.5	0.26	0.02
COMBUSTOR	0	18	11 21														
43.682	60.645	2618	612.5(755)	1.3092	26.029	2559											
43.682	36.483	2319	516.9(660)	1.3191	26.029	2417	0.905	2189	2.135	0.72364	13.529	0.0730	1602	24.613	118.4	0.26	0.00

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
44.310	54.611	2589	604.1(746)	1.3102	26.026	2546											
44.310	41.667	2428	552.3(695)	1.3155	26.026	2470	0.652	1610	2.139	0.69917	13.529	0.0755	1483	17.494	109.6	0.26	0.00
COMBUSTOR	0	20	13 21														
44.800	51.700	3287	596.5(960)	1.2766	26.796	2790											
44.800	45.715	3200	566.9(932)	1.2797	26.797	2756	0.441	1217	2.197	0.68197	13.529	0.0775	1419	12.896	104.9	0.26	0.53
COMBUSTOR	0	21	14 21														
46.250	56.606	2583	616.5(889)	1.3138	21.672	2790											
46.250	55.700	2573	612.7(886)	1.3141	21.672	2785	0.157	437	2.473	0.64547	13.777	0.0833	1376	4.381	99.9	0.82	0.08
COMBUSTOR	0	22	15 21														
46.260	56.746	2345	616.3(804)	1.3247	21.476	2682											
46.260	55.769	2335	612.6(800)	1.3251	21.476	2677	0.162	434	2.442	0.64496	13.777	0.0834	1377	4.348	100.0	0.82	0.01
COMBUSTOR	0	23	16 21														
46.402	57.583	2304	614.0(789)	1.3266	21.448	2662											
46.402	56.750	2296	610.9(785)	1.3269	21.448	2657	0.148	394	2.434	0.64040	13.777	0.0840	1390	3.923	100.9	0.82	0.00
COMBUSTOR	0	24	17 21														
47.117	52.950	2267	602.1(775)	1.3279	21.443	2642											
47.117	49.795	2253	589.3(762)	1.3291	21.443	2623	0.305	801	2.436	0.61452	13.777	0.0875	1459	7.645	105.9	0.82	0.00
COMBUSTOR	0	25	18 21														
47.310	50.393	3767	598.8(1328)	1.2531	22.795	3209											
47.310	47.922	3729	582.4(1312)	1.2547	22.796	3195	0.284	907	2.579	0.60364	13.777	0.0891	1482	8.505	107.6	0.82	0.43
COMBUSTOR	0	26	19 21														
48.110	47.375	2457	585.0(842)	1.3186	21.636	2729											
48.110	40.277	2362	549.1(807)	1.3218	21.636	2679	0.500	1341	2.471	0.55181	13.777	0.0975	1580	11.498	114.7	0.82	0.06
COMBUSTOR	0	27	20 21														
49.642	43.486	2186	558.9(744)	1.3304	21.471	2595											
49.642	20.325	1804	418.6(604)	1.3447	21.471	2370	1.117	2647	2.440	0.42590	13.777	0.1263	1791	17.522	130.0	0.82	0.01
COMBUSTOR	0	28	21 21														
51.082	35.795	2135	572.3(848)	1.3358	18.300	2784											
51.082	18.604	1807	432.5(708)	1.3485	18.300	2573	1.028	2645	2.782	0.35313	14.038	0.1552	1893	14.515	134.9	1.41	0.03
COMBUSTOR	0	29	22 7														
51.092	37.820	1974	572.2(781)	1.3436	18.192	2692											
51.092	18.592	1642	432.3(642)	1.3567	18.192	2467	1.072	2646	2.746	0.35268	14.038	0.1554	1894	14.501	135.0	1.41	0.00
COMBUSTOR	0	30	23 4														
51.622	36.269	2082	563.5(825)	1.3382	18.277	2753											
51.622	17.958	1738	417.9(680)	1.3515	18.277	2528	1.068	2699	2.770	0.32984	14.038	0.1662	1942	13.837	138.3	1.41	0.03
COMBUSTOR	0	31	24 5														
53.032	32.962	2342	542.3(932)	1.3252	18.489	2889											
53.032	15.394	1937	367.7(758)	1.3403	18.489	2642	1.119	2956	2.821	0.28111	14.038	0.1960	2058	12.914	146.6	1.41	0.08
COMBUSTOR	0	32	25 5														
55.132	29.686	2613	516.7(1045)	1.3119	18.723	3017											
55.132	11.512	2075	281.8(811)	1.3312	18.723	2708	1.266	3428	2.866	0.23040	14.038	0.2379	2197	12.273	156.5	1.41	0.14
COMBUSTOR	0	33	26 4														
55.632	29.085	2659	511.4(1064)	1.3096	18.765	3037											
55.632	10.800	2091	263.2(817)	1.3299	18.765	2715	1.298	3524	2.873	0.22099	14.038	0.2480	2224	12.103	158.4	1.41	0.16
COMBUSTOR	0	34	27 3														
55.760	28.990	2665	510.1(1067)	1.3092	18.772	3040											
55.760	10.562	2087	257.1(815)	1.3300	18.772	2711	1.312	3558	2.874	0.21872	14.038	0.2506	2230	12.092	158.9	1.41	0.16
COMBUSTOR	0	35	28 5														
56.382	23.804	3175	503.9(1285)	1.2844	19.170	3252											
56.382	9.403	2569	228.2(1014)	1.3060	19.172	2950	1.259	3715	2.946	0.16866	14.038	0.3250	2403	9.736	171.2	1.41	0.26
COMBUSTOR	0	36	29 4														
57.142	25.147	3033	497.2(1223)	1.2914	19.070	3196											
57.142	7.042	2252	148.7(878)	1.3191	19.071	2783	1.501	4176	2.927	0.16116	14.038	0.3401	2435	10.458	173.5	1.41	0.23
COMBUSTOR	0	37	30 4														
58.567	24.458	3094	487.5(1249)	1.2881	19.134	3218											
58.567	6.235	2251	110.6(876)	1.3181	19.135	2776	1.564	4343	2.934	0.14895	14.038	0.3679	2482	10.054	176.8	1.41	0.25

READING = 0061 BLOCK = 193 TIME = 273.362 MACH 6.0 PT = 745.749 TT = 3001.5

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 4														
58.622	23.092	3225	487.3(1306)	1.2814	19.238	3268											
58.622	7.039	2460	140.0(964)	1.3088	19.240	2884	1.445	4168	2.952	0.14851	14.038	0.3691	2484	9.620	176.9	1.41	0.28
COMBUSTOR	0	39	32 3														
58.762	23.027	3228	486.5(1307)	1.2812	19.241	3269											
58.762	6.953	2457	136.6(963)	1.3089	19.244	2882	1.452	4184	2.952	0.14747	14.038	0.3717	2487	9.589	177.2	1.41	0.28
COMBUSTOR	0	40	33 6														
58.842	25.362	3050	486.0(1230)	1.2902	19.102	3201											
58.842	5.895	2166	93.0(841)	1.3218	19.104	2730	1.624	4434	2.926	0.14917	14.038	0.3674	2489	10.280	177.5	1.41	0.24
COMBUSTOR	0	41	34 4														
59.122	26.228	3006	484.2(1211)	1.2924	19.071	3182											
59.122	5.550	2083	76.0(806)	1.3255	19.072	2683	1.685	4519	2.918	0.14863	14.038	0.3688	2496	10.439	177.8	1.41	0.23
COMBUSTOR	0	42	35 4														
59.348	25.165	3095	482.6(1249)	1.2880	19.142	3217											
59.348	5.972	2213	89.2(860)	1.3194	19.144	2754	1.611	4437	2.931	0.14835	14.038	0.3695	2501	10.229	178.2	1.41	0.25
COMBUSTOR	0	43	36 4														
60.072	22.678	3362	477.2(1365)	1.2738	19.365	3316											
60.072	7.325	2612	132.2(1027)	1.3013	19.370	2954	1.407	4155	2.964	0.14605	14.038	0.3753	2517	9.431	179.3	1.41	0.31
COMBUSTOR	0	44	37 3														
61.092	22.901	3375	469.8(1370)	1.2729	19.388	3319											
61.092	7.125	2601	113.8(1022)	1.3014	19.393	2946	1.433	4221	2.963	0.14511	14.038	0.3777	2531	9.519	180.3	1.41	0.31
COMBUSTOR	0	45	38 6														
63.102	30.219	2908	457.6(1168)	1.2964	19.040	3138											
63.102	4.775	1867	3.7(717)	1.3348	19.041	2551	1.868	4766	2.890	0.15016	14.038	0.3650	2526	11.122	179.9	1.41	0.23
COMBUSTOR	0	46	39 5														
64.522	22.160	3690	449.4(1507)	1.2535	19.687	3418											
64.522	11.919	3244	232.6(1301)	1.2727	19.699	3228	1.020	3293	2.986	0.15423	14.038	0.3553	2522	7.894	179.6	1.41	0.39
COMBUSTOR	0	47	40 3														
66.986	20.982	3670	433.3(1497)	1.2541	19.699	3408											
66.986	10.864	3200	205.5(1281)	1.2743	19.711	3207	1.053	3376	2.988	0.14620	14.038	0.3749	2516	7.671	179.2	1.41	0.39
COMBUSTOR	0	48	41 3														
67.362	19.482	3673	430.8(1499)	1.2535	19.707	3408											
67.362	10.358	3222	211.4(1291)	1.2732	19.718	3216	1.030	3313	2.995	0.13591	14.038	0.4032	2515	6.998	179.2	1.41	0.39
COMBUSTOR REGEN	49	42	21														
67.362	19.482	4000	603.4(1652)	1.2339	19.682	3531											
67.362	8.580	3401	397.5(1373)	1.2644	19.714	3293	1.188	3912	3.040	0.13591	14.038	0.4032	2593	8.264	184.7	1.41	0.39
NOZZLE AE	50	43	3														
89.598	19.482	3673	430.8(1479)	1.2535	19.707	3408											
89.598	0.521	1598	-492.6(593)	1.3378	19.722	2321	2.928	6798	2.995	0.02829	14.038	1.9370	3224	2.989	229.7	1.41	0.39
NOZZLE PO	51	44	3														
89.598	19.482	3673	430.8(1479)	1.2535	19.707	3408											
89.598	0.390	1484	-537.8(548)	1.3437	19.722	2242	3.105	6962	2.995	0.02333	14.038	2.3495	3272	2.824	233.1	1.41	0.39
NOZZLE AE REGEN	52	45	4														
89.598	19.482	4000	603.4(1652)	1.2339	19.682	3531											
89.598	0.572	1828	-399.6(686)	1.3269	19.722	2473	2.865	7084	3.040	0.02829	14.038	1.9371	3375	3.115	240.4	1.41	0.39
NOZZLE PO REGEN	53	46	4														
89.598	19.482	4000	603.4(1652)	1.2339	19.682	3531											
89.598	0.390	1661	-467.1(619)	1.3346	19.722	2364	3.096	7319	3.040	0.02190	14.038	2.5024	3443	2.491	245.3	1.41	0.39
FICTIVE COMBUSTR	73	66	0														
67.362	252.216	5124	430.8(2152)	1.1926	21.008	3803											
67.362	0.390	1300	-1348.2(456)	1.3374	21.181	2020	4.670	9435	2.802	0.03874	14.038	1.4146	4258	5.681	303.3	1.41	1.00
FICTIVE NOZZLE	74	67	0														
89.598	18.741	3604	395.9(1466)	1.2569	19.709	3380											
89.598	0.521	1575	-501.6(584)	1.3389	19.722	2306	2.906	6702	2.990	0.02829	14.038	1.9371	3183	2.947	226.7	1.41	0.39

READING = 0061 BLOCK = 193 TIME = 273.362 MACH 6.0 PI = 745.749 TT = 3001.5 PAGE 4

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSU	P-IB/PTO	P-OB/PSU	P-OB/PTO
6.981E-01	1.060E 00	0.000	-4.640E-01	0.000	0.000	0.000	2.470E-02	2.721E 00	1.421E-03	0.000	0.000
1.836E 01	1.060E 00	0.000	-3.531E 01	0.000	0.000	0.000	1.634E 02	2.721E 00	1.421E-03	0.000	0.000
3.070E 01	2.275E 00	0.000	-1.705E 02	0.000	0.000	0.000	5.053E 02	5.840E 00	3.051E-03	0.000	0.000
3.508E 01	4.005E 00	0.000	-3.740E 02	0.000	0.000	0.000	6.804E 02	1.028E 01	5.370E-03	0.000	0.000
3.555E 01	4.115E 00	0.000	-4.110E 02	0.000	0.000	0.000	7.013E 02	1.056E 01	5.518E-03	0.000	0.000
3.606E 01	3.985E 00	0.000	-4.521E 02	-2.336E 02	-2.336E 02	0.000	7.246E 02	1.023E 01	5.344E-03	0.000	0.000
3.648E 01	4.291E 00	0.000	-4.875E 02	-2.593E 02	-2.393E 02	0.000	7.443E 02	1.102E 01	5.754E-03	0.000	0.000
3.701E 01	4.295E 00	0.000	-5.350E 02	-2.467E 02	-2.467E 02	0.000	7.696E 02	1.102E 01	5.759E-03	0.000	0.000
3.750E 01	4.093E 00	5.693E 00	-6.368E 02	-2.540E 02	-2.540E 02	0.000	7.937E 02	1.051E 01	5.488E-03	1.461E 01	7.634E-03
3.751E 01	4.091E 00	5.742E 00	-6.370E 02	-2.540E 02	-2.540E 02	0.000	7.940E 02	1.050E 01	5.485E-03	1.474E 01	7.699E-03
3.803E 01	3.875E 00	9.973E 00	-6.325E 02	-2.622E 02	-2.622E 02	0.000	8.498E 02	9.947E 00	5.196E-03	2.560E 01	1.337E-02
3.817E 01	5.039E 00	1.112E 01	-6.270E 02	-2.646E 02	-2.646E 02	0.000	8.653E 02	1.293E 01	6.757E-03	2.856E 01	1.492E-02
3.875E 01	9.756E 00	1.373E 01	-6.185E 02	-4.308E 02	-2.774E 02	-1.534E 02	9.291E 02	2.504E 01	1.308E-02	3.525E 01	1.841E-02
3.901E 01	1.188E 01	1.490E 01	-6.171E 02	-4.507E 02	-2.848E 02	-1.659E 02	9.580E 02	3.050E 01	1.593E-02	3.826E 01	1.999E-02
3.950E 01	1.240E 01	1.711E 01	-6.170E 02	-4.963E 02	-3.020E 02	-1.943E 02	1.014E 03	3.183E 01	1.663E-02	4.393E 01	2.295E-02
3.963E 01	1.371E 01	1.771E 01	-6.160E 02	-5.053E 02	-3.074E 02	-1.979E 02	1.029E 03	3.520E 01	1.839E-02	4.547E 01	2.375E-02
4.000E 01	1.735E 01	2.399E 01	-6.104E 02	-5.322E 02	-3.242E 02	-2.081E 02	1.072E 03	4.454E 01	2.327E-02	6.157E 01	3.216E-02
4.040E 01	2.870E 01	3.081E 01	-6.078E 02	-5.656E 02	-3.446E 02	-2.190E 02	1.118E 03	7.368E 01	3.849E-02	7.910E 01	4.132E-02
4.041E 01	2.899E 01	3.099E 01	-6.076E 02	-5.644E 02	-3.451E 02	-2.193E 02	1.119E 03	7.441E 01	3.887E-02	7.954E 01	4.155E-02
4.065E 01	3.587E 01	3.512E 01	-6.095E 02	-5.840E 02	-3.581E 02	-2.259E 02	1.147E 03	9.207E 01	4.810E-02	9.016E 01	4.710E-02
4.112E 01	4.921E 01	4.145E 01	-6.181E 02	-6.233E 02	-3.847E 02	-2.386E 02	1.202E 03	1.263E 02	6.599E-02	1.064E 02	5.558E-02
4.150E 01	5.992E 01	4.834E 01	-6.268E 02	-6.562E 02	-4.075E 02	-2.488E 02	1.247E 03	1.538E 02	8.036E-02	1.241E 02	6.483E-02
4.163E 01	6.135E 01	5.076E 01	-6.283E 02	-6.661E 02	-4.158E 02	-2.523E 02	1.262E 03	1.575E 02	8.227E-02	1.303E 02	6.807E-02
4.212E 01	6.664E 01	7.650E 00	-6.912E 02	-7.135E 02	-4.483E 02	-2.652E 02	1.320E 03	1.710E 02	8.935E-02	1.964E 01	1.026E-02
4.246E 01	7.027E 01	6.722E 00	-7.775E 02	-7.462E 02	-4.723E 02	-2.739E 02	1.360E 03	1.804E 02	9.423E-02	1.725E 01	9.014E-03
4.262E 01	6.967E 01	6.275E 00	-8.185E 02	-7.623E 02	-4.843E 02	-2.780E 02	1.379E 03	1.788E 02	9.342E-02	1.611E 01	8.414E-03
4.361E 01	6.599E 01	7.187E 00	-1.036E 03	-6.910E 02	-5.633E 02	-3.277E 02	1.497E 03	1.694E 02	8.849E-02	1.845E 01	9.637E-03
4.362E 01	6.595E 01	7.196E 00	-1.036E 03	-8.926E 02	-5.642E 02	-3.284E 02	1.498E 03	1.693E 02	8.844E-02	1.847E 01	9.649E-03
4.368E 01	6.571E 01	7.256E 00	-1.050E 03	-9.052E 02	-5.698E 02	-3.334E 02	1.506E 03	1.687E 02	8.811E-02	1.863E 01	9.730E-03
4.431E 01	6.337E 01	1.997E 01	-1.163E 03	-1.017E 03	-6.260E 02	-3.913E 02	1.582E 03	1.627E 02	8.497E-02	5.125E 01	2.677E-02
4.480E 01	6.154E 01	2.989E 01	-1.225E 03	-1.120E 03	-6.726E 02	-4.477E 02	1.641E 03	1.580E 02	8.252E-02	7.673E 01	4.008E-02
4.625E 01	5.214E 01	5.926E 01	-1.221E 03	-1.446E 03	-8.089E 02	-6.370E 02	1.818E 03	1.338E 02	6.991E-02	1.521E 02	7.947E-02
4.626E 01	5.207E 01	5.947E 01	-1.219E 03	-1.448E 03	-8.098E 02	-6.383E 02	1.819E 03	1.337E 02	6.982E-02	1.526E 02	7.974E-02
4.640E 01	5.115E 01	6.235E 01	-1.206E 03	-1.480E 03	-8.226E 02	-6.578E 02	1.837E 03	1.313E 02	6.858E-02	1.601E 02	8.361E-02
4.712E 01	4.651E 01	5.308E 01	-1.135E 03	-1.644E 03	-8.853E 02	-7.592E 02	1.924E 03	1.194E 02	6.237E-02	1.362E 02	7.117E-02
4.731E 01	4.526E 01	5.058E 01	-1.111E 03	-1.689E 03	-9.017E 02	-7.878E 02	1.948E 03	1.162E 02	6.069E-02	1.298E 02	6.783E-02
4.811E 01	4.035E 01	4.020E 01	-1.010E 03	-1.879E 03	-9.681E 02	-9.108E 02	2.047E 03	1.036E 02	5.411E-02	1.032E 02	5.391E-02
4.964E 01	2.032E 01	2.032E 01	-7.879E 02	-2.239E 03	-1.086E 03	-1.153E 03	2.237E 03	5.217E 01	2.725E-02	5.217E 01	2.725E-02
5.108E 01	1.860E 01	1.860E 01	-6.434E 02	-2.572E 03	-1.185E 03	-1.387E 03	2.417E 03	4.775E 01	2.495E-02	4.775E 01	2.495E-02
5.109E 01	1.859E 01	1.859E 01	-6.424E 02	-2.574E 03	-1.186E 03	-1.388E 03	2.418E 03	4.772E 01	2.493E-02	4.772E 01	2.493E-02
5.162E 01	1.796E 01	1.796E 01	-5.919E 02	-2.696E 03	-1.219E 03	-1.476E 03	2.485E 03	4.610E 01	2.408E-02	4.610E 01	2.408E-02
5.303E 01	1.539E 01	1.539E 01	-4.686E 02	-2.993E 03	-1.302E 03	-1.691E 03	2.662E 03	3.951E 01	2.064E-02	3.951E 01	2.064E-02
5.513E 01	1.151E 01	1.151E 01	-3.205E 02	-3.353E 03	-1.406E 03	-1.948E 03	2.929E 03	2.955E 01	1.544E-02	2.955E 01	1.544E-02
5.563E 01	1.080E 01	1.080E 01	-2.915E 02	-3.428E 03	-1.427E 03	-2.000E 03	2.993E 03	2.772E 01	1.448E-02	2.772E 01	1.448E-02
5.576E 01	1.056E 01	1.056E 01	-2.844E 02	-3.446E 03	-1.433E 03	-2.013E 03	3.009E 03	2.711E 01	1.416E-02	2.711E 01	1.416E-02
5.638E 01	9.403E 00	9.403E 00	-1.098E 02	-3.532E 03	-1.460E 03	-2.072E 03	3.051E 03	2.414E 01	1.261E-02	2.414E 01	1.261E-02
5.714E 01	6.096E 00	7.987E 00	-7.612E 01	-3.626E 03	-1.493E 03	-2.133E 03	3.109E 03	1.565E 01	8.174E-03	2.050E 01	1.071E-02
5.857E 01	6.233E 00	6.233E 00	-2.552E 01	-3.762E 03	-1.548E 03	-2.214E 03	3.217E 03	1.600E 01	8.358E-03	1.600E 01	8.358E-03
5.862E 01	7.912E 00	6.166E 00	-2.376E 01	-3.766E 03	-1.550E 03	-2.217E 03	3.224E 03	2.031E 01	1.061E-02	1.583E 01	8.268E-03
5.876E 01	7.912E 00	5.993E 00	-1.980E 01	-3.777E 03	-1.554E 03	-2.223E 03	3.241E 03	2.031E 01	1.061E-02	1.538E 01	8.036E-03
5.884E 01	5.895E 00	5.895E 00	-1.741E 01	-3.784E 03	-1.557E 03	-2.227E 03	3.252E 03	1.513E 01	7.904E-03	1.513E 01	7.904E-03
5.912E 01	5.550E 00	5.550E 00	-9.938E 00	-3.808E 03	-1.566E 03	-2.242E 03	3.287E 03	1.425E 01	7.442E-03	1.425E 01	7.442E-03
5.935E 01	5.972E 00	5.972E 00	-4.333E 00	-3.830E 03	-1.573E 03	-2.257E 03	3.316E 03	1.533E 01	8.008E-03	1.533E 01	8.008E-03
6.007E 01	7.325E 00	7.325E 00	1.369E 01	-3.907E 03	-1.594E 03	-2.313E 03	3.409E 03	1.880E 01	9.822E-03	1.880E 01	9.822E-03
6.109E 01	7.125E 00	7.125E 00	3.043E 01	-4.011E 03	-1.618E 03	-2.393E 03	3.539E 03	1.829E 01	9.554E-03	1.829E 01	9.554E-03
6.310E 01	4.775E 00	4.775E 00	3.181E 01	-4.181E 03	-1.655E 03	-2.527E 03	3.797E 03	1.226E 01	6.403E-03	1.226E 01	6.403E-03

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CA-ALL	P-IB/PSO	K-IB/PTO	P-OB/PSO	P-OB/PTO
6.452E 01	1.192E 01	1.192E 01	3.181E 01	-4.296E 03	-1.678E 03	-2.620E 03	5.980E 03	3.059E 01	1.598E-02	3.059E 01	1.598E-02
6.699E 01	1.086E 01	1.086E 01	3.181E 01	-4.524E 03	-1.728E 03	-2.796E 03	4.296E 03	2.789E 01	1.457E-02	2.789E 01	1.457E-02
6.736E 01	1.001E 01	1.070E 01	3.181E 01	-4.599E 03	-1.737E 03	-2.622E 03	4.344E 03	2.570E 01	1.343E-02	2.747E 01	1.435E-02
6.740E 01	1.001E 01	1.069E 01	3.181E 01	-4.563E 03	-1.738E 03	-2.825E 03	4.349E 03	2.570E 01	1.343E-02	2.743E 01	1.433E-02
6.760E 01	9.597E 00	1.060E 01	3.181E 01	-4.580E 03	-1.742E 03	-2.838E 03	4.375E 03	2.464E 01	1.287E-02	2.721E 01	1.421E-02
6.926E 01	6.150E 00	5.190E 00	1.196E 02	-4.706E 03	-1.774E 03	-2.932E 03	4.591E 03	1.579E 01	8.247E-03	1.332E 01	6.959E-03
6.993E 01	4.438E 00	4.807E 00	2.238E 02	-4.746E 03	-1.784E 03	-2.963E 03	4.672E 03	1.139E 01	5.951E-03	1.234E 01	6.447E-03
7.070E 01	2.470E 00	3.705E 00	3.295E 02	-4.788E 03	-1.793E 03	-2.996E 03	4.767E 03	6.340E 00	3.312E-03	9.512E 00	4.969E-03
7.142E 01	1.926E 00	2.675E 00	3.982E 02	-4.825E 03	-1.799E 03	-3.026E 03	4.855E 03	4.944E 00	2.583E-03	6.667E 00	3.587E-03
7.203E 01	1.465E 00	2.241E 00	4.427E 02	-4.854E 03	-1.803E 03	-3.051E 03	4.929E 03	3.761E 00	1.964E-03	5.752E 00	3.005E-03
7.298E 01	1.099E 00	1.565E 00	4.921E 02	-4.893E 03	-1.808E 03	-3.085E 03	5.043E 03	2.718E 00	1.420E-03	4.017E 00	2.099E-03
7.341E 01	8.750E-01	1.447E 00	5.092E 02	-4.908E 03	-1.810E 03	-3.098E 03	5.095E 03	2.246E 00	1.173E-03	3.713E 00	1.940E-03
7.494E 01	6.246E-01	1.025E 00	5.552E 02	-4.949E 03	-1.816E 03	-3.133E 03	5.280E 03	1.603E 00	8.375E-04	2.631E 00	1.374E-03
7.509E 01	6.000E-01	9.358E-01	5.586E 02	-4.952E 03	-1.816E 03	-3.136E 03	5.297E 03	1.540E 00	8.046E-04	2.402E 00	1.255E-03
7.584E 01	6.523E-01	4.900E-01	5.817E 02	-4.971E 03	-1.819E 03	-3.152E 03	5.382E 03	1.674E 00	8.747E-04	1.258E 00	6.571E-04
7.585E 01	6.526E-01	4.876E-01	5.827E 02	-4.971E 03	-1.819E 03	-3.152E 03	5.382E 03	1.675E 00	8.750E-04	1.252E 00	6.539E-04
7.717E 01	7.450E-01	0.000	5.974E 02	-5.007E 03	-1.823E 03	-3.185E 03	5.434E 03	1.912E 00	9.990E-04	0.000	0.000
8.002E 01	1.000E 00	0.000	6.323E 02	-5.015E 03	-1.830E 03	-3.185E 03	5.532E 03	2.567E 00	1.341E-03	0.000	0.000
8.392E 01	8.100E-01	0.000	6.710E 02	-5.024E 03	-1.840E 03	-3.185E 03	5.637E 03	2.079E 00	1.086E-03	0.000	0.000
8.673E 01	1.045E 00	0.000	6.916E 02	-5.033E 03	-1.848E 03	-3.185E 03	5.691E 03	2.682E 00	1.401E-03	0.000	0.000
8.959E 01	1.555E 00	0.000	7.230E 02	-5.048E 03	-1.863E 03	-3.185E 03	5.714E 03	3.992E 00	2.085E-03	0.000	0.000
8.960E 01	1.556E 00	0.000	7.230E 02	-5.048E 03	-1.863E 03	-3.185E 03	5.714E 03	3.994E 00	2.087E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.103E 02	1.103E 02	2.479E-03	4.690E-02
4.041E 01	1.861E-01	1.104E 02	2.945E-03	6.847E-02
4.065E 01	4.589E 00	1.150E 02	3.087E-03	7.261E-02
4.112E 01	8.656E 00	1.237E 02	3.257E-03	7.777E-02
4.150E 01	6.413E 00	1.301E 02	3.352E-03	8.015E-02
4.163E 01	2.097E 00	1.322E 02	3.372E-03	8.010E-02
4.212E 01	8.078E 00	1.403E 02	3.348E-03	6.495E-02
4.246E 01	5.607E 00	1.459E 02	3.463E-03	6.080E-02
4.262E 01	2.517E 00	1.484E 02	3.512E-03	5.800E-02
4.361E 01	1.339E 01	1.616E 02	3.879E-03	4.570E-02
4.362E 01	1.067E-01	1.619E 02	3.474E-03	5.055E-02
4.368E 01	6.712E-01	1.626E 02	3.414E-03	5.108E-02
4.431E 01	5.581E 00	1.681E 02	3.594E-03	4.390E-02
4.480E 01	3.302E 00	1.714E 02	3.747E-03	3.752E-02
4.625E 01	6.885E 00	1.783E 02	5.269E-03	1.636E-02
4.626E 01	2.575E-02	1.784E 02	4.557E-03	2.028E-02
4.640E 01	3.270E-01	1.787E 02	4.469E-03	1.998E-02
4.712E 01	2.126E 00	1.808E 02	3.902E-03	3.172E-02
4.731E 01	7.400E-01	1.815E 02	3.809E-03	3.398E-02
4.811E 01	3.983E 00	1.855E 02	4.254E-03	3.137E-02
4.964E 01	1.028E 01	1.958E 02	3.194E-03	3.783E-02
5.108E 01	9.881E 00	2.057E 02	3.663E-03	3.094E-02
5.109E 01	6.137E-02	2.058E 02	3.091E-03	3.715E-02
5.162E 01	2.828E 00	2.086E 02	2.913E-03	3.805E-02
5.303E 01	6.861E 00	2.154E 02	2.865E-03	3.481E-02
5.513E 01	9.652E 00	2.251E 02	2.891E-03	2.865E-02
5.563E 01	2.319E 00	2.274E 02	3.079E-03	2.582E-02
5.576E 01	6.089E-01	2.280E 02	3.106E-03	2.545E-02
5.638E 01	1.379E 00	2.294E 02	2.949E-03	2.275E-02
5.714E 01	1.804E 00	2.312E 02	3.174E-03	1.808E-02
5.857E 01	3.432E 00	2.346E 02	3.042E-03	1.723E-02
5.862E 01	2.133E-01	2.349E 02	3.114E-03	1.806E-02
5.876E 01	5.373E-01	2.354E 02	3.182E-03	1.762E-02
5.884E 01	3.363E-01	2.357E 02	3.432E-03	1.487E-02
5.912E 01	1.191E 00	2.369E 02	3.016E-03	1.607E-02
5.935E 01	8.943E-01	2.378E 02	2.987E-03	1.688E-02
6.007E 01	2.752E 00	2.406E 02	3.058E-03	1.844E-02
6.109E 01	3.866E 00	2.444E 02	3.184E-03	1.745E-02
6.310E 01	8.413E 00	2.528E 02	3.138E-03	1.404E-02
6.452E 01	5.388E 00	2.582E 02	3.083E-03	2.305E-02
6.699E 01	8.011E 00	2.662E 02	3.430E-03	1.935E-02
6.736E 01	1.223E 00	2.675E 02	3.482E-03	1.827E-02
6.740E 01	1.250E-01	2.676E 02	3.473E-03	1.818E-02
6.760E 01	6.285E-01	2.682E 02	3.466E-03	1.810E-02
6.926E 01	5.547E 00	2.738E 02	3.320E-03	1.438E-02
6.993E 01	2.137E 00	2.759E 02	3.280E-03	1.285E-02
7.070E 01	2.284E 00	2.782E 02	3.208E-03	1.005E-02
7.142E 01	1.868E 00	2.801E 02	3.158E-03	8.282E-03
7.203E 01	1.404E 00	2.815E 02	3.124E-03	7.144E-03
7.298E 01	1.890E 00	2.833E 02	3.069E-03	5.602E-03
7.341E 01	7.576E-01	2.841E 02	3.049E-03	5.129E-03
7.494E 01	2.358E 00	2.865E 02	2.990E-03	5.990E-03
7.509E 01	1.948E-01	2.867E 02	2.978E-03	3.785E-03
7.584E 01	8.564E-01	2.875E 02	2.926E-03	3.036E-03
7.585E 01	1.492E-03	2.875E 02	2.926E-03	3.031E-03
7.717E 01	5.191E-01	2.880E 02	2.961E-03	3.666E-03

READING = 0061 BLOCK = 193 TIME = 273.362 MACH 6.0 PT = 745.749 TT = 3001.5

X	DDRAG	CDRAG	CF	HC
8.002E 01	1.159E 00	2.892E 02	2.991E-03	4.546E-03
8.392E 01	1.260E 00	2.905E 02	2.936E-03	3.866E-03
8.673E 01	6.597E-01	2.911E 02	2.963E-03	4.634E-03
8.959E 01	3.286E-01	2.914E 02	3.012E-03	6.130E-03
8.960E 01	0.000	2.914E 02	3.012E-03	6.133E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	368.	(LBF)
MEASURED THRUST	359.	(LBF)
CALCULATED SPECIFIC IMPULSE	591.	(LBF*SEC/LBM)
MEASURED SPECIFIC IMPULSE	577.	(LBF*SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.1470	
MEASURED THRUST COEFFICIENT	0.1435	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	3331.	(LBF)
NET THRUST	516.	(LBF)
SPECIFIC IMPULSE	829.	(LBF*SEC/LBM)
THRUST COEFFICIENT	0.2063	

MOMENTUM AND FORCES

INLET FRICTION DRAG	110.3	(LBF)
INLET MOMENTUM CHANGE	*718.1	(LBF)
COMBUSTOR FRICTION DRAG	157.2	(LBF)
COMBUSTOR STRUT DRAG	*8.42	(LBF)
COMBUSTOR MOMENTUM CHANGE	418.	(LBF)
NOZZLE FRICTION DRAG	23.98	(LBF)
NOZZLE STRUT DRAG	*0.00	(LBF)
NOZZLE MOMENTUM CHANGE	667.	(LBF)
NOZZLE PRESSURE INTEGRAL	691.	(LBF)
EXTERNAL FRICTION DRAG	72.60	(LBF)
EXTERNAL PRESSURE INTEGRAL	*1401.	(LBF)
TOTAL EXTERNAL DRAG	*1474.	(LBF)
TOTAL STRUT DRAG	*8.42	(LBF)
CAVITY FORCE	*1266.	(LBF)
CALCULATED LOAD CELL FORCE	*2371.	(LBF)
MEASURED LOAD CELL FORCE	*2380.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, 0.0, 0.0, *162.7, *125.1,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	2.6225	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	37.506	(IN)
NOZZLE SHROUD TRAILING EDGE	75.846	(IN)
NOZZLE PLUG TRAILING EDGE	89.598	(IN)
STRUT LEADING EDGE	58.762	(IN)
STRUT TRAILING EDGE	67.362	(IN)
COMBUSTOR EXIT	67.362	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.4937	
ADDITIVE DRAG COEFFICIENT	0.0981	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1510	
DELTA PT2	0.1130	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3382	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1532	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8927	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9051	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9004	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8549	
ENTHALPY AT P0 - SUPERSONIC	*3.28	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	28.61	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0464	
EQUIVALENCE RATIO	1.412	
COMBUSTOR EFFICIENCY	0.390	
TOTAL PRESSURE RATIO	0.0772	
COMBUSTOR EFFECTIVENESS	0.5438	
INJECTOR DISCHARGE COEFFICIENTS	0.6833, 0.4348, 0.7700, 0.6999	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9870	
NOZZLE COEFFICIENT - CT	0.9136	
PROCESS EFFICIENCY	1.0127	
KINETIC ENERGY EFFICIENCY	0.9720	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	43.607	B
1C	44.300	
2A	51.082	D
2C	46.250	E
3A	56.372	
3B	58.557	
4	47.107	

Reading 63

t = 186.15 sec.

READING = 0063 BLOCK = 64 TIME = 186.154 MACH 6.0 PT = 924.499 TT = 3018.6 4/14/75 PAGE 1

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

154

P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	FTAC
WIND TUNNEL 1		0 5														
0.000	924.499 3019	676.8(802)	1.2933	28.832	2595											
0.000	0.489 411	-30.5(99)	1.3988	28.831	995	5.977	5949	1.815	0.13226	33.326	0.9838	6285	12.228	188.6		
SPIKE TIP NS 2		0 4														
0.600	22.437 3019	676.8(802)	1.2932	28.831	2595											
0.600	20.228 2948	655.5(782)	1.2954	28.831	2566	0.403	1033	2.072	0.13226	33.326	0.9838	6167	2.124	185.1		
WIND TUNNEL 3		0 0														
0.000	924.499 3019	676.8(802)	1.2933	28.832	2595											
0.000	0.473 407	-31.4(98)	1.3988	28.831	990	6.010	5953	1.815	0.12920	32.554	0.9838	6143	11.953	188.7		
SPIKE TIP NS 4		0 0														
0.600	22.437 3019	676.8(802)	1.2932	28.831	2595											
0.600	20.343 2952	656.6(783)	1.2953	28.831	2568	0.391	1005	2.072	0.12920	32.554	0.9838	6143	2.018	188.7		
INLET THROAT 5		0 4														
40.400	356.168 2990	668.2(794)	1.2942	28.831	2583											
40.400	19.983 1483	238.3(368)	1.3500	28.831	1858	2.496	4638	1.878	1.16604	33.326	0.1116	5375	84.045	161.3		
INLET UPNRSK 6		0 3														
40.400	356.168 2990	668.2(794)	1.2942	28.831	2583											
40.400	17.159 1425	223.0(352)	1.3533	28.831	1824	2.588	4720	1.878	1.06004	33.326	0.1227	5428	77.750	162.9		
INLET DNNRSK 7		0 4														
40.400	153.390 2990	668.2(794)	1.2942	28.831	2583											
40.400	131.581 2887	637.1(764)	1.2974	28.831	2542	0.491	1247	1.936	1.06004	33.326	0.1227	5428	20.539	162.9		
COMBUSTOR 0 8		1 4														
40.410	355.308 2990	668.1(794)	1.2942	28.831	2583											
40.410	20.008 1484	238.6(368)	1.3499	28.831	1859	2.494	4636	1.878	1.16590	33.326	0.1116	5374	83.997	161.3		
COMBUSTOR 0 9		2 4														
41.300	282.118 2983	666.0(792)	1.2944	28.831	2581											
41.300	23.188 1632	278.1(408)	1.3421	28.831	1943	2.267	4406	1.894	1.16824	33.326	0.1114	5225	79.987	156.8		
COMBUSTOR 0 10		3 4														
41.365	277.854 2983	665.8(792)	1.2944	28.831	2580											
41.365	23.484 1643	281.2(411)	1.3415	28.831	1949	2.251	4387	1.895	1.17013	33.326	0.1112	5213	79.781	156.4		
COMBUSTOR 0 11		4 4														
41.500	268.541 2981	665.4(791)	1.2945	28.831	2580											
41.500	24.038 1666	287.5(417)	1.3404	28.831	1962	2.216	4349	1.897	1.17060	33.326	0.1112	5189	79.112	155.7		
COMBUSTOR 0 12		5 5														
42.460	233.981 2970	662.0(788)	1.2948	28.831	2575											
42.460	25.977 1752	310.9(440)	1.3364	28.831	2009	2.086	4192	1.905	1.15964	33.326	0.1122	5088	75.538	152.7		
COMBUSTOR 0 13		6 5														
44.085	215.026 2947	655.0(781)	1.2955	28.831	2566											
44.085	25.810 1771	316.2(446)	1.3356	28.831	2020	2.039	4118	1.909	1.11938	33.326	0.1162	5034	71.630	151.0		
COMBUSTOR 0 14		7 5														
44.310	213.061 2944	654.1(780)	1.2956	28.831	2565											
44.310	25.891 1775	317.1(447)	1.3354	28.831	2022	2.031	4106	1.909	1.11763	33.326	0.1164	5025	71.317	150.8		
COMBUSTOR 0 15		8 5														
44.800	208.073 2937	652.0(778)	1.2958	28.831	2562											
44.800	26.111 1785	319.8(449)	1.3350	28.831	2027	2.011	4077	1.910	1.11296	33.326	0.1169	5005	70.518	150.2		
COMBUSTOR 0 16		9 5														
44.800	208.091 2937	652.0(778)	1.2958	28.831	2562											
44.800	26.113 1785	319.8(449)	1.3350	28.831	2027	2.011	4077	1.910	1.11306	33.326	0.1169	5005	70.524	150.2		
COMBUSTOR 0 17		10 5														
46.260	188.098 2919	646.7(773)	1.2964	28.831	2555											
46.260	25.242 1803	324.8(454)	1.3343	28.831	2037	1.970	4013	1.915	1.04830	33.326	0.1241	4959	65.376	148.8		
COMBUSTOR 0 18		11 5														
47.310	172.574 2907	643.1(770)	1.2968	28.831	2550											
47.310	23.664 1805	325.3(455)	1.3342	28.831	2038	1.957	3988	1.920	0.97564	33.326	0.1334	4939	60.461	148.2		

READING = 0063 BLOCK = 64 TIME = 186.154 MACH 6.0 PT = 924.499 TT = 3018.6

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	5														
47.325	172.341	2907	643.0(	769)	1.2968	28.831	2550											
47.325	23.613	1804	325.2(	455)	1.3342	28.831	2037	1.958	3988	1.920	0.97391	33.326	0.1336	4939	60.361	148.2		
COMBUSTOR	0	20	13	5														
48.110	162.896	2899	640.5(	767)	1.2970	28.831	2546											
48.110	21.761	1787	320.5(	450)	1.3349	28.831	2028	1.973	4002	1.923	0.90919	33.326	0.1431	4943	56.541	148.3		
COMBUSTOR	0	21	14	4														
48.775	156.337	2892	638.5(	765)	1.2972	28.831	2544											
48.775	19.353	1749	310.0(	439)	1.3366	28.831	2008	2.020	4054	1.925	0.83728	33.326	0.1554	4970	52.756	149.1		
COMBUSTOR	0	22	15	4														
49.305	152.648	2887	637.0(	764)	1.2974	28.831	2541											
49.305	17.489	1711	299.8(	429)	1.3382	28.831	1987	2.067	4107	1.926	0.78305	33.326	0.1662	4999	49.983	150.0		
COMBUSTOR	0	23	16	5														
50.715	141.781	2875	633.5(	760)	1.2978	28.831	2537											
50.715	13.945	1639	280.2(	410)	1.3417	28.831	1947	2.159	4205	1.930	0.66737	33.326	0.1950	5052	43.607	151.6		
COMBUSTOR	0	24	17	4														
52.815	127.585	2861	629.2(	756)	1.2982	28.831	2531											
52.815	10.662	1564	259.8(	389)	1.3456	28.831	1905	2.257	4299	1.936	0.54699	33.326	0.2379	5103	36.545	153.1		
COMBUSTOR	0	25	18	4														
53.315	125.683	2858	628.2(	755)	1.2983	28.831	2529											
53.315	10.034	1543	254.4(	384)	1.3467	28.831	1893	2.285	4325	1.936	0.52464	33.326	0.2480	5117	35.263	153.6		
COMBUSTOR	0	26	19	4														
54.065	122.740	2853	626.9(	754)	1.2984	28.831	2528											
54.065	9.226	1517	247.3(	377)	1.3481	28.831	1878	2.321	4358	1.938	0.49454	33.326	0.2631	5136	33.494	154.1		
COMBUSTOR	0	27	20	4														
54.825	119.675	2849	625.7(	752)	1.2986	28.831	2526											
54.825	8.540	1494	241.3(	371)	1.3494	28.831	1865	2.352	4386	1.939	0.46766	33.326	0.2782	5151	31.874	154.6		
COMBUSTOR	0	28	21	5														
55.760	115.762	2845	624.3(	751)	1.2987	28.831	2524											
55.760	7.846	1472	235.3(	365)	1.3506	28.831	1851	2.383	4412	1.941	0.43881	33.326	0.2965	5166	30.086	155.0		
COMBUSTOR	0	29	22	4														
56.250	100.589	2843	623.7(	751)	1.2988	28.831	2523											
56.250	6.026	1424	222.7(	352)	1.3534	28.831	1823	2.457	4479	1.950	0.35369	33.326	0.3679	5208	24.621	156.3		
COMBUSTOR	0	30	23	5														
56.305	100.481	2842	623.6(	750)	1.2988	28.831	2523											
56.305	6.005	1423	222.4(	352)	1.3535	28.831	1822	2.459	4481	1.950	0.35275	33.326	0.3689	5208	24.563	156.3		
COMBUSTOR	0	31	24	5														
56.445	100.067	2842	623.4(	750)	1.2988	28.831	2523											
56.445	5.946	1421	221.8(	351)	1.3536	28.831	1821	2.462	4483	1.950	0.35009	33.326	0.3717	5210	24.393	156.3		
COMBUSTOR	0	32	25	5														
56.525	101.397	2842	623.4(	750)	1.2988	28.831	2523											
56.525	6.006	1419	221.4(	351)	1.3537	28.831	1820	2.464	4485	1.949	0.35408	33.326	0.3675	5211	24.678	156.4		
COMBUSTOR	0	33	26	5														
56.805	101.602	2841	623.0(	750)	1.2988	28.831	2522											
56.805	5.962	1415	220.3(	350)	1.3539	28.831	1818	2.470	4489	1.949	0.35284	33.326	0.3688	5213	24.615	156.4		
COMBUSTOR	0	34	27	5														
57.031	101.788	2840	622.8(	750)	1.2989	28.831	2522											
57.031	5.935	1412	219.6(	349)	1.3541	28.831	1816	2.473	4492	1.949	0.35218	33.326	0.3695	5214	24.584	156.5		
COMBUSTOR	0	35	28	4														
57.755	101.219	2837	622.0(	749)	1.2989	28.831	2521											
57.755	5.802	1405	217.6(	347)	1.3545	28.831	1811	2.484	4499	1.949	0.34672	33.326	0.3753	5218	24.242	156.6		
COMBUSTOR	0	36	29	3														
58.775	101.390	2834	621.0(	748)	1.2991	28.831	2520											
58.775	5.729	1397	215.7(	345)	1.3550	28.831	1807	2.492	4504	1.949	0.34451	33.326	0.3777	5219	24.112	156.6		
COMBUSTOR	0	37	30	5														
60.785	102.991	2828	619.3(	746)	1.2992	28.831	2517											
60.785	5.985	1404	217.5(	347)	1.3545	28.831	1811	2.475	4484	1.947	0.35650	33.326	0.3650	5204	24.840	156.1		

READING = 0063 BLOCK = 64 TIME = 186.154 MACH 6.0 PT = 924.499 TT = 3018.6

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31	5														
62.205	104.145	2824	618.2	(745)	1.2993	28.831	2516											
62.205	6.199	1411	219.3	(349)	1.3541	28.831	1615	2.461	4468	1.946	0.36616	33.326	0.3553	5192	25.423	155.8		
COMBUSTOR	0	39	32	4														
64.669	96.208	2818	616.3	(743)	1.2995	28.831	2513											
64.669	5.958	1422	222.2	(352)	1.3535	28.831	1822	2.437	4441	1.951	0.34708	33.326	0.3749	5172	23.951	155.2		
COMBUSTOR	0	40	33	2														
65.045	89.121	2817	616.0	(743)	1.2996	28.831	2513											
65.045	5.551	1424	222.6	(352)	1.3534	28.831	1823	2.434	4437	1.956	0.32267	33.326	0.4032	5169	22.247	155.1		
NOZZLE AE		41	34	3														
87.281	89.121	2817	616.0	(743)	1.2996	28.831	2513											
87.281	0.498	737	48.5	(178)	1.3931	28.831	1330	4.006	5329	1.956	0.06717	33.326	1.9371	5766	5.562	173.0		
NOZZLE P0		42	35	3														
87.281	89.121	2817	616.0	(743)	1.2996	28.831	2513											
87.281	0.489	733	47.7	(177)	1.3933	28.831	1327	4.018	5333	1.956	0.06641	33.326	1.9591	5769	5.504	173.1		
FICTIVE COMBUSTR		62	55	0														
65.045	356.168	2817	616.0	(743)	1.2996	28.831	2513											
65.045	0.489	494	-10.2	(119)	1.3990	28.831	1092	5.125	5598	1.860	0.10335	33.326	1.2589	5956	8.991	178.7		
FICTIVE NOZZLE		63	56	0														
87.281	81.660	2796	609.8	(737)	1.3002	28.831	2504											
87.281	0.515	756	53.2	(183)	1.3923	28.831	1347	3.918	5277	1.960	0.06717	33.326	1.9371	5722	5.509	171.7		

READING = 0063 BLOCK = 64 TIME = 186.154 MACH 6.0 PT = 924.499 TT = 3018.6

XABS	P-IB	P-OB	PDA	Q0X	Q-IB	Q-OB	CAWALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OB/PT0
6.981E-01	1.315E 00	0.000	-5.469E-01	0.000	0.000	0.000	2.470E-02	2.687E 00	1.422E-03	0.000	0.000
1.836E 01	1.315E 00	0.000	-4.378E 01	0.000	0.000	0.000	1.634E 02	2.687E 00	1.422E-03	0.000	0.000
3.070E 01	2.690E 00	0.000	-2.061E 02	0.000	0.000	0.000	5.053E 02	5.497E 00	2.910E-03	0.000	0.000
3.508E 01	4.810E 00	0.000	-4.492E 02	0.000	0.000	0.000	6.804E 02	9.829E 00	5.203E-03	0.000	0.000
3.518E 01	4.820E 00	7.214E 00	-5.308E 02	0.000	0.000	0.000	6.850E 02	9.849E 00	5.213E-03	1.474E 01	7.804E-03
3.519E 01	4.820E 00	7.167E 00	-5.309E 02	0.000	0.000	0.000	6.852E 02	9.851E 00	5.214E-03	1.465E 01	7.752E-03
3.555E 01	4.855E 00	4.311E 00	-5.407E 02	0.000	0.000	0.000	7.214E 02	9.921E 00	5.251E-03	8.809E 00	4.663E-03
3.585E 01	4.810E 00	1.900E 00	-5.595E 02	-1.198E 02	-1.198E 02	0.000	7.524E 02	9.830E 00	5.203E-03	3.883E 00	2.055E-03
3.606E 01	4.780E 00	2.999E 00	-5.739E 02	-1.212E 02	-1.212E 02	0.000	7.734E 02	9.768E 00	5.170E-03	6.129E 00	3.244E-03
3.648E 01	5.217E 00	5.250E 00	-5.993E 02	-1.242E 02	-1.242E 02	0.000	8.171E 02	1.066E 01	5.643E-03	1.073E 01	5.679E-03
3.701E 01	5.185E 00	8.091E 00	-6.299E 02	-1.497E 02	-1.281E 02	-2.157E 01	8.732E 02	1.060E 01	5.608E-03	1.653E 01	8.752E-03
3.731E 01	5.031E 00	9.725E 00	-6.438E 02	-1.590E 02	-1.305E 02	-2.854E 01	9.058E 02	1.028E 01	5.442E-03	1.987E 01	1.052E-02
3.803E 01	4.670E 00	1.631E 01	-6.606E 02	-1.809E 02	-1.363E 02	-4.456E 01	9.839E 02	9.543E 00	5.051E-03	3.332E 01	1.764E-02
3.833E 01	6.493E 00	1.911E 01	-6.583E 02	-1.908E 02	-1.394E 02	-5.135E 01	1.018E 03	1.327E 01	7.023E-03	3.906E 01	2.067E-02
3.875E 01	8.975E 00	1.868E 01	-6.591E 02	-2.058E 02	-1.452E 02	-6.055E 01	1.065E 03	1.834E 01	9.708E-03	3.818E 01	2.021E-02
3.880E 01	9.303E 00	1.862E 01	-6.593E 02	-2.079E 02	-1.461E 02	-6.176E 01	1.071E 03	1.901E 01	1.006E-02	3.806E 01	2.015E-02
3.901E 01	1.053E 01	1.908E 01	-6.589E 02	-2.162E 02	-1.499E 02	-6.629E 01	1.094E 03	2.152E 01	1.139E-02	3.900E 01	2.064E-02
3.931E 01	1.657E 01	1.976E 01	-6.648E 02	-2.295E 02	-1.565E 02	-7.299E 01	1.130E 03	3.386E 01	1.792E-02	4.038E 01	2.138E-02
3.950E 01	2.024E 01	1.420E 01	-6.752E 02	-2.382E 02	-1.612E 02	-7.703E 01	1.151E 03	4.136E 01	2.189E-02	2.902E 01	1.536E-02
3.980E 01	2.091E 01	5.050E 00	-7.051E 02	-2.536E 02	-1.700E 02	-8.358E 01	1.187E 03	4.272E 01	2.261E-02	1.032E 01	5.462E-03
4.000E 01	2.133E 01	4.934E 00	-7.282E 02	-2.642E 02	-1.765E 02	-8.771E 01	1.209E 03	4.360E 01	2.308E-02	1.008E 01	5.337E-03
4.040E 01	2.518E 01	4.697E 00	-7.780E 02	-2.874E 02	-1.909E 02	-9.653E 01	1.256E 03	5.145E 01	2.723E-02	9.599E 00	5.081E-03
4.041F 01	2.527E 01	4.691E 00	-7.792E 02	-2.880E 02	-1.912E 02	-9.676E 01	1.257E 03	5.164E 01	2.734E-02	9.586E 00	5.074E-03
4.130E 01	3.382E 01	4.164E 00	-9.089E 02	-3.583E 02	-2.270E 02	-1.313E 02	1.363E 03	6.910E 01	3.658E-02	8.508E 00	4.504E-03
4.136E 01	3.444E 01	4.125E 00	-9.192E 02	-3.648E 02	-2.299E 02	-1.349E 02	1.370E 03	7.038E 01	3.725E-02	8.429E 00	4.462E-03
4.150E 01	3.574E 01	4.588E 00	-9.407E 02	-3.786E 02	-2.359E 02	-1.427E 02	1.387E 03	7.303E 01	3.866E-02	9.376E 00	4.963E-03
4.246E 01	1.342E 01	7.879E 00	-1.021E 03	-4.943E 02	-2.808E 02	-2.135E 02	1.501E 03	2.743E 01	1.452E-02	1.610E 01	8.523E-03
4.408E 01	1.777E 01	1.345E 01	-1.041E 03	-7.248E 02	-3.569E 02	-3.679E 02	1.698E 03	3.632E 01	1.923E-02	2.749E 01	1.455E-02
4.431E 01	1.838E 01	1.323E 01	-1.044E 03	-7.574E 02	-3.670E 02	-3.904E 02	1.725E 03	3.755E 01	1.988E-02	2.703E 01	1.431E-02
4.480E 01	1.969E 01	1.274E 01	-1.054E 03	-8.247E 02	-3.886E 02	-4.361E 02	1.785E 03	4.023E 01	2.129E-02	2.604E 01	1.378E-02
4.480F 01	1.969E 01	1.274E 01	-1.054E 03	-8.247F 02	-3.886E 02	-4.361E 02	1.785E 03	4.023E 01	2.130E-02	2.604E 01	1.378E-02
4.626E 01	1.962E 01	1.130E 01	-1.071E 03	-1.004E 03	-4.498E 02	-5.543E 02	1.965E 03	4.009E 01	2.122E-02	2.310E 01	1.222E-02
4.731E 01	1.957E 01	1.026E 01	-1.071E 03	-1.123E 03	-4.909E 02	-6.318E 02	2.095E 03	3.999E 01	2.117E-02	2.098E 01	1.110E-02
4.732E 01	1.946E 01	1.025E 01	-1.070E 03	-1.124E 03	-4.915E 02	-6.329E 02	2.097E 03	3.977E 01	2.105E-02	2.095E 01	1.109E-02
4.811E 01	1.370E 01	1.169E 01	-1.053E 03	-1.209E 03	-5.207E 02	-6.886E 02	2.195E 03	2.800E 01	1.482E-02	2.390E 01	1.265E-02
4.877E 01	1.292E 01	1.292E 01	-1.014E 03	-1.276E 03	-5.444E 02	-7.319E 02	2.278E 03	2.640E 01	1.397E-02	2.640E 01	1.397E-02
4.930E 01	1.389E 01	1.389E 01	-9.772E 02	-1.327E 03	-5.627E 02	-7.639E 02	2.344E 03	2.839E 01	1.503E-02	2.839E 01	1.503E-02
5.071E 01	5.725E 00	5.725E 00	-9.047E 02	-1.443E 03	-6.084E 02	-8.350E 02	2.522E 03	1.170E 01	6.193E-03	1.170E 01	6.193E-03
5.281E 01	8.100E 00	8.100E 00	-8.286E 02	-1.587E 03	-6.689E 02	-9.180E 02	2.788E 03	1.655E 01	8.761E-03	1.655E 01	8.761E-03
5.331E 01	7.197E 00	7.197E 00	-8.087E 02	-1.618E 03	-6.820E 02	-9.361E 02	2.852E 03	1.471E 01	7.785E-03	1.471E 01	7.785E-03
5.406E 01	6.286E 00	6.286E 00	-7.826E 02	-1.662F 03	-7.007E 02	-9.617E 02	2.948E 03	1.285E 01	6.799E-03	1.285E 01	6.799E-03
5.482E 01	5.362E 00	5.362E 00	-7.600E 02	-1.704F 03	-7.185E 02	-9.852E 02	3.045E 03	1.096E 01	5.800E-03	1.096E 01	5.800E-03
5.576E 01	4.388E 00	4.388E 00	-7.372E 02	-1.749E 03	-7.387E 02	-1.010E 03	3.165E 03	8.968E 00	4.747E-03	8.968E 00	4.747E-03
5.625F 01	3.878E 00	3.878E 00	-6.925E 02	-1.770E 03	-7.479E 02	-1.022E 03	3.209E 03	7.925E 00	4.195E-03	7.925E 00	4.195E-03
5.630E 01	2.100E 00	3.821E 00	-6.914E 02	-1.772E 03	-7.488E 02	-1.023E 03	3.216E 03	4.291E 00	2.271E-03	7.808E 00	4.133E-03
5.644E 01	2.100E 00	3.675E 00	-6.890E 02	-1.777E 03	-7.511E 02	-1.026E 03	3.234E 03	4.291E 00	2.271E-03	7.510E 00	3.975E-03
5.652E 01	3.592E 00	3.592E 00	-6.875E 02	-1.781E 03	-7.524E 02	-1.028E 03	3.245E 03	7.340E 00	3.885E-03	7.340E 00	3.885E-03
5.680E 01	3.300E 00	3.300E 00	-6.830E 02	-1.791E 03	-7.568E 02	-1.034E 03	3.280E 03	6.744E 00	3.569E-03	6.744E 00	3.569E-03
5.703F 01	3.350E 00	3.350E 00	-6.798E 02	-1.799E 03	-7.602E 02	-1.039E 03	3.309E 03	6.846E 00	3.624E-03	6.846E 00	3.624E-03
5.775E 01	3.510E 00	3.510E 00	-6.705E 02	-1.824E 03	-7.705E 02	-1.054E 03	3.402E 03	7.173E 00	3.797E-03	7.173E 00	3.797E-03
5.877E 01	4.875E 00	4.875E 00	-6.608E 02	-1.859E 03	-7.831E 02	-1.075E 03	3.532E 03	9.962E 00	5.273E-03	9.962E 00	5.273E-03
6.078E 01	2.925E 00	2.925E 00	-6.599E 02	-1.917E 03	-8.028E 02	-1.114E 03	3.790E 03	5.977E 00	3.164E-03	5.977E 00	3.164E-03
6.220F 01	1.744E 00	1.744E 00	-6.599E 02	-1.952E 03	-8.150E 02	-1.137E 03	3.972E 03	3.563E 00	1.886E-03	3.563E 00	1.886E-03
6.467E 01	4.169E 00	4.169E 00	-6.599E 02	-2.017E 03	-8.381E 02	-1.178E 03	4.289E 03	8.519E 00	4.509E-03	8.519E 00	4.509E-03
6.504E 01	5.587E 00	4.539E 00	-6.599E 02	-2.027E 03	-8.419E 02	-1.185E 03	4.337E 03	1.142E 01	6.044E-03	9.275E 00	4.909E-03
6.508E 01	5.587E 00	4.578E 00	-6.599E 02	-2.028E 03	-8.423E 02	-1.186E 03	4.342E 03	1.142E 01	6.044E-03	9.356E 00	4.952E-03

READING = 0063 BLOCK = 64 TIME = 186.154 MACH 6.10 PT = 924.499 TT = 3018.6

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.528E 01	5.226E 00	4.775E 00	-6.599E 02	-2.034E 03	-8.442E 02	-1.189E 03	4.368E 03	1.068E 01	5.653E-03	9.758E 00	5.165E-03
6.694E 01	2.230E 00	4.420E 00	-6.125E 02	-2.074E 03	-8.580E 02	-1.216E 03	4.583E 03	4.557E 00	2.412E-03	9.032E 00	4.781E-03
6.761E 01	2.183E 00	5.602E 00	-5.397E 02	-2.088E 03	-8.622E 02	-1.225E 03	4.665E 03	4.462E 00	2.362E-03	1.145E 01	6.060E-03
6.838E 01	2.130E 00	4.066E 00	-4.480E 02	-2.104E 03	-8.664E 02	-1.237E 03	4.760E 03	4.353E 00	2.304E-03	8.310E 00	4.398E-03
6.910E 01	1.838E 00	2.630E 00	-3.807E 02	-2.119E 03	-8.697E 02	-1.250E 03	4.848E 03	3.755E 00	1.988E-03	5.374E 00	2.845E-03
6.971E 01	1.590E 00	2.419E 00	-3.354E 02	-2.133E 03	-8.721E 02	-1.261E 03	4.922E 03	3.249E 00	1.720E-03	4.943E 00	2.616E-03
7.066E 01	1.390E 00	2.090E 00	-2.770E 02	-2.154E 03	-8.755E 02	-1.278E 03	5.036E 03	2.841E 00	1.504E-03	4.271E 00	2.261E-03
7.109E 01	1.300E 00	1.991E 00	-2.535E 02	-2.163E 03	-8.768E 02	-1.286E 03	5.088E 03	2.657E 00	1.406E-03	4.069E 00	2.154E-03
7.262E 01	9.676E-01	1.640E 00	-1.849E 02	-2.187E 03	-8.809E 02	-1.306E 03	5.273E 03	1.977E 00	1.047E-03	3.351E 00	1.774E-03
7.277E 01	9.350E-01	1.425E 00	-1.797E 02	-2.189E 03	-8.812E 02	-1.308E 03	5.290E 03	1.911E 00	1.011E-03	2.912E 00	1.541E-03
7.352E 01	8.034E-01	3.500E-01	-1.498E 02	-2.199E 03	-8.828E 02	-1.316E 03	5.374E 03	1.642E 00	8.690E-04	7.152E-01	3.786E-04
7.353E 01	8.027E-01	3.443E-01	-1.491E 02	-2.199E 03	-8.828E 02	-1.317E 03	5.375E 03	1.640E 00	8.682E-04	7.035E-01	3.724E-04
7.485E 01	5.700E-01	0.000	-1.346E 02	-2.220E 03	-8.852E 02	-1.335E 03	5.427E 03	1.165E 00	6.165E-04	0.000	0.000
7.770E 01	2.900E-01	0.000	-1.174E 02	-2.224E 03	-8.889E 02	-1.335E 03	5.525E 03	5.926E-01	3.137E-04	0.000	0.000
8.160E 01	5.150E-01	0.000	-1.002E 02	-2.227E 03	-8.921E 02	-1.335E 03	5.630E 03	1.052E 00	5.571E-04	0.000	0.000
8.441E 01	5.950E-01	0.000	-8.785E 01	-2.229E 03	-8.945E 02	-1.335E 03	5.684E 03	1.216E 00	6.436E-04	0.000	0.000
8.727E 01	7.350E-01	0.000	-7.180E 01	-2.234E 03	-8.987E 02	-1.335E 03	5.707E 03	1.502E 00	7.950E-04	0.000	0.000
8.728E 01	7.353E-01	0.000	-7.180E 01	-2.234E 03	-8.987E 02	-1.335E 03	5.707E 03	1.503E 00	7.953E-04	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.361E 02	1.361E 02	2.158E-03	5.284E-02
4.041E 01	2.142E-01	1.363E 02	2.159E-03	5.287E-02
4.130E 01	1.916E 01	1.555E 02	2.281E-03	5.690E-02
4.136E 01	1.412E 00	1.569E 02	2.289E-03	5.728E-02
4.150E 01	2.944E 00	1.598E 02	2.308E-03	5.791E-02
4.246E 01	2.078E 01	1.806E 02	2.373E-03	5.952E-02
4.408E 01	3.450E 01	2.151E 02	2.396E-03	5.814E-02
4.431E 01	4.692E 00	2.198E 02	2.402E-03	5.820E-02
4.480E 01	1.022E 01	2.300E 02	2.416E-03	5.835E-02
4.480E 01	2.608E-03	2.300E 02	2.416E-03	5.835E-02
4.626E 01	2.964E 01	2.597E 02	2.447E-03	5.570E-02
4.731E 01	2.008E 01	2.797E 02	2.456E-03	5.204E-02
4.732E 01	2.679E-01	2.800E 02	2.455E-03	5.194E-02
4.811E 01	1.403E 01	2.940E 02	2.450E-03	4.830E-02
4.877E 01	1.109E 01	3.051E 02	2.426E-03	4.390E-02
4.930E 01	8.245E 00	3.134E 02	2.402E-03	4.049E-02
5.071E 01	1.977E 01	3.331E 02	2.356E-03	3.359E-02
5.281E 01	2.487E 01	3.580E 02	2.305E-03	2.671E-02
5.331E 01	5.257E 00	3.633E 02	2.290E-03	2.540E-02
5.406E 01	7.513E 00	3.708E 02	2.271E-03	2.367E-02
5.482E 01	7.204E 00	3.780E 02	2.256E-03	2.217E-02
5.576E 01	8.372E 00	3.864E 02	2.241E-03	2.060E-02
5.625E 01	2.687E 00	3.890E 02	2.195E-03	1.618E-02
5.630E 01	3.803E-01	3.894E 02	2.195E-03	1.612E-02
5.644E 01	9.544E-01	3.904E 02	2.193E-03	1.598E-02
5.652E 01	5.500E-01	3.909E 02	2.187E-03	1.612E-02
5.680E 01	1.920E 00	3.928E 02	2.181E-03	1.601E-02
5.703E 01	1.546E 00	3.944E 02	2.177E-03	1.595E-02
5.775E 01	4.914E 00	3.993E 02	2.169E-03	1.562E-02
5.877E 01	6.839E 00	4.061E 02	2.159E-03	1.544E-02
6.078E 01	1.363E 01	4.198E 02	2.159E-03	1.598E-02
6.220E 01	9.885E 00	4.297E 02	2.158E-03	1.642E-02
6.467E 01	1.695E 01	4.466E 02	2.186E-03	1.579E-02
6.504E 01	2.450E 00	4.491E 02	2.211E-03	1.486E-02
6.508E 01	2.480E-01	4.493E 02	2.226E-03	1.413E-02
6.528E 01	1.211E 00	4.505E 02	2.222E-03	1.395E-02
6.694E 01	9.001E 00	4.595E 02	2.142E-03	1.025E-02
6.761E 01	3.141E 00	4.627E 02	2.168E-03	1.152E-02
6.838E 01	3.561E 00	4.662E 02	2.124E-03	9.685E-03
6.910E 01	2.774E 00	4.690E 02	2.062E-03	7.541E-03
6.971E 01	2.020E 00	4.710E 02	2.041E-03	6.933E-03
7.066E 01	2.873E 00	4.739E 02	2.013E-03	6.210E-03
7.109E 01	1.222E 00	4.751E 02	2.003E-03	5.947E-03
7.262E 01	3.933E 00	4.790E 02	1.962E-03	4.968E-03
7.277E 01	3.280E-01	4.794E 02	1.944E-03	4.600E-03
7.352E 01	1.239E 00	4.806E 02	1.826E-03	2.651E-03
7.353E 01	1.801E-03	4.806E 02	1.825E-03	2.639E-03
7.485E 01	5.735E-01	4.812E 02	1.819E-03	2.620E-03
7.770E 01	8.664E-01	4.821E 02	1.709E-03	1.553E-03
8.160E 01	8.821E-01	4.829E 02	1.782E-03	2.393E-03
8.441E 01	5.811E-01	4.835E 02	1.796E-03	2.660E-03
8.727E 01	2.730E-01	4.838E 02	1.821E-03	3.114E-03
8.728E 01	0.000	4.838E 02	1.821E-03	3.115E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	-567.	(LBF)
MEASURED THRUST	-668.	(LBF)
CALCULATED SPECIFIC IMPULSE	-567.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	-668.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	-.1811	
MEASURED THRUST COEFFICIENT	-.2134	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	0.	(LBF)
NET THRUST	0.	(LBF)
SPECIFIC IMPULSE	0.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.0000	

MOMENTUM AND FORCES

INLET FRICTION DRAG	136.1	(LBF)
INLET MOMENTUM CHANGE	-914.1	(LBF)
COMBUSTOR FRICTION DRAG	313.0	(LBF)
COMBUSTOR STRUT DRAG	11.55	(LBF)
COMBUSTOR MOMENTUM CHANGE	-206.	(LBF)
NOZZLE FRICTION DRAG	34.73	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	553.	(LBF)
NOZZLE PRESSURE INTEGRAL	588.	(LBF)
EXTERNAL FRICTION DRAG	50.83	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1255.	(LBF)
TOTAL EXTERNAL DRAG	-1305.	(LBF)
TOTAL STRUT DRAG	11.55	(LBF)
CAVITY FORCE	-1060.	(LBF)
CALCULATED LOAD CELL FORCE	-2932.	(LBF)
MEASURED LOAD CELL FORCE	-3034.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3049	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.189	(IN)
NOZZLE SHROUD TRAILING EDGE	73.529	(IN)
NOZZLE PLUG TRAILING EDGE	87.281	(IN)
STRUT LEADING EDGE	56.445	(IN)
STRUT TRAILING EDGE	65.045	(IN)
COMBUSTOR EXIT	65.045	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9838	
ADDITIVE DRAG COEFFICIENT	0.0006	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1636	
DELTA PT2	0.1484	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3853	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1659	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8903	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9035	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9461	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8967	
ENTHALPY AT P0 - SUPERSONIC	-0.97	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	33.98	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0000
EQUIVALENCE RATIO	0.000
COMBUSTOR EFFICIENCY	0.000
TOTAL PRESSURE RATIO	0.2502
COMBUSTOR EFFECTIVENESS	0.6784
INJECTOR DISCHARGE COEFFICIENTS	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9923
NOZZLE COEFFICIENT - CT	0.9498
PROCESS EFFICIENCY	0.9834
KINETIC ENERGY EFFICIENCY	0.9840

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.290	
1C	44.300	
2A	48.765	
2C	46.250	
3A	54.055	
3B	56.240	
4	44.790	

Reading 63

$t = 192.45$ sec.

READING = 0063 BLOCK = 71 TIME = 192.454 MACH 6.0 PI = 926.749 TT = 2998.3 3/03/75. PAGE 1

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	M/A	R	A/AC	FORTR	D	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	926.749	2998	670.6(796)	1.2939	28.832	2586											
0.000	0.486	406	=31.5(98)	1.3988	28.831	990	5.988	5927	1.813	0.13243	33.401	0.9847	6276	12.199	187.9		
SPIKE TIP NS		2	0 4														
0.600	22.487	2998	670.6(796)	1.2938	28.831	2586											
0.600	20.294	2929	649.6(776)	1.2960	28.831	2559	0.400	1024	2.069	0.13243	33.401	0.9847	6182	2.108	185.1		
WIND TUNNEL		3	0 0														
0.000	926.749	2998	670.6(796)	1.2939	28.832	2586											
0.000	0.474	403	=32.3(97)	1.3987	28.831	986	6.014	5931	1.813	0.12999	32.784	0.9847	6163	11.980	188.0		
SPIKE TIP NS		4	0 0														
0.600	22.487	2998	670.6(796)	1.2938	28.831	2586											
0.600	20.385	2932	650.5(777)	1.2959	28.831	2560	0.391	1002	2.069	0.12999	32.784	0.9847	6163	2.024	188.0		
INLET THROAT		5	0 4														
40.400	352.741	2962	659.6(786)	1.2951	28.831	2572											
40.400	20.056	1472	235.4(365)	1.3506	28.831	1852	2.488	4607	1.876	1.17111	33.401	0.1114	5355	83.855	160.3		
INLET UPNRSK		6	0 3														
40.400	352.741	2962	659.6(786)	1.2951	28.831	2572											
40.400	17.217	1415	220.2(350)	1.3539	28.831	1817	2.580	4689	1.876	1.06464	33.401	0.1225	5408	77.584	161.9		
INLET DNNRSK		7	0 4														
40.400	153.090	2962	659.7(786)	1.2951	28.831	2572											
40.400	131.242	2860	628.8(756)	1.2982	28.831	2530	0.491	1243	1.934	1.06464	33.401	0.1225	5408	20.571	161.9		
COMBUSTOR	0	8	1 21														
40.410	295.213	2916	659.8(806)	1.2976	27.581	2612											
40.410	15.304	1408	214.6(363)	1.3555	27.580	1855	2.544	4720	1.956	1.17514	33.520	0.1114	5354	86.195	159.7	0.12	0.07
COMBUSTOR	0	9	2 21														
41.300	224.901	2844	661.2(814)	1.3014	26.484	2636											
41.300	19.777	1567	268.4(424)	1.3483	26.484	1991	2.226	4433	2.031	1.18137	33.631	0.1111	5197	81.395	154.5	0.24	0.04
COMBUSTOR	0	10	3 21														
41.310	234.919	2804	661.2(802)	1.3033	26.442	2621											
41.310	19.828	1525	268.9(412)	1.3508	26.442	1968	2.251	4430	2.024	1.18110	33.631	0.1112	5195	81.317	154.5	0.24	0.01
COMBUSTOR	0	11	4 21														
41.375	233.431	2797	661.0(800)	1.3036	26.436	2619											
41.375	20.155	1530	272.2(413)	1.3506	26.436	1971	2.237	4410	2.024	1.18289	33.631	0.1110	5163	81.076	154.1	0.24	0.00
COMBUSTOR	0	12	5 21														
41.500	228.059	2795	660.6(799)	1.3037	26.435	2618											
41.500	21.304	1560	281.3(422)	1.3491	26.435	1989	2.190	4357	2.025	1.18317	33.631	0.1110	5159	80.105	153.4	0.24	0.00
COMBUSTOR	0	13	6 21														
42.460	187.204	2783	656.7(795)	1.3040	26.435	2613											
42.460	17.418	1551	278.7(420)	1.3495	26.434	1984	2.192	4349	2.039	1.17155	33.631	0.1121	5046	79.188	150.1	0.24	0.00
COMBUSTOR	0	14	7 5														
44.095	163.202	2873	648.0(822)	1.2996	26.558	2644											
44.095	35.224	1990	371.5(548)	1.3294	26.558	2225	1.671	3719	2.057	1.13128	33.631	0.1161	4934	65.382	146.7	0.24	0.10
COMBUSTOR	0	15	8 3														
44.310	156.220	2913	646.6(834)	1.2977	26.605	2658											
44.310	37.414	2073	382.5(573)	1.3258	26.605	2266	1.604	3635	2.064	1.12931	33.631	0.1163	4914	63.795	146.1	0.24	0.14
COMBUSTOR	0	16	9 3														
44.800	143.918	2981	643.1(855)	1.2944	26.690	2681											
44.800	42.400	2238	406.9(622)	1.3190	26.690	2345	1.466	3437	2.075	1.12491	33.631	0.1167	4861	60.092	144.5	0.24	0.21
COMBUSTOR	0	17	10 2														
44.810	143.832	2981	643.0(855)	1.2944	26.689	2681											
44.810	42.413	2237	407.1(622)	1.3190	26.690	2345	1.465	3436	2.075	1.12492	33.631	0.1167	4859	60.065	144.5	0.24	0.21
COMBUSTOR	0	18	11 11														
46.250	126.244	2673	643.4(826)	1.3096	24.263	2678											
46.250	44.356	2074	441.0(.625)	1.3300	24.263	2378	1.339	3183	2.200	1.06860	33.892	0.1238	4759	52.852	140.4	0.51	0.04

READING = 0063 BLOCK = 71 TIME = 192.454 MACH 6.0 PI = 926.749 TT = 2998.3 PAGE 2

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	2														
46.260	126.134	2673	643.4(	826)	1.3096	24.264	2678											
46.260	44.369	2075	441.1(	625)	1.3299	24.264	2378	1.338	3181	2.200	1.06794	33.892	0.1239	4759	52.800	140.4	0.51	0.04
COMBUSTOR	0	20	13	4														
47.310	116.234	2813	634.5(	872)	1.3029	24.422	2732											
47.310	45.785	2254	443.1(	682)	1.3216	24.422	2462	1.257	3095	2.220	0.99368	33.892	0.1332	4822	47.789	142.3	0.51	0.12
COMBUSTOR	0	21	14	2														
47.335	116.091	2816	634.2(	872)	1.3028	24.425	2733											
47.335	45.823	2257	443.1(	683)	1.3215	24.425	2464	1.255	3093	2.221	0.99257	33.892	0.1333	4823	47.709	142.3	0.51	0.12
COMBUSTOR	0	22	15	4														
48.110	110.774	2925	628.0(	908)	1.2976	24.550	2773											
48.110	43.096	2343	427.4(	710)	1.3170	24.550	2500	1.268	3168	2.234	0.92591	33.892	0.1429	4915	45.590	145.0	0.51	0.18
COMBUSTOR	0	23	16	6														
48.775	104.015	2731	633.0(	913)	1.3078	22.492	2810											
48.775	39.606	2164	425.0(	706)	1.3271	22.492	2519	1.281	3226	2.367	0.85951	34.167	0.1552	5000	43.090	146.3	0.80	0.10
COMBUSTOR	0	24	17	2														
48.785	103.925	2733	632.9(	914)	1.3077	22.494	2810											
48.785	39.568	2165	424.7(	707)	1.3270	22.494	2520	1.281	3227	2.367	0.85839	34.167	0.1554	5002	43.052	146.4	0.80	0.10
COMBUSTOR	0	25	18	4														
49.315	99.370	2845	629.2(	953)	1.3024	22.603	2855											
49.315	37.546	2257	411.7(	738)	1.3223	22.603	2562	1.288	3299	2.382	0.80280	34.167	0.1662	5101	41.157	149.3	0.80	0.14
COMBUSTOR	0	26	19	4														
50.725	89.115	3141	620.3(1058)		1.2885	22.895	2965											
50.725	33.457	2506	380.9(	823)	1.3097	22.896	2670	1.297	3461	2.417	0.68420	34.167	0.1950	5345	36.803	156.4	0.80	0.24
COMBUSTOR	0	27	20	4														
52.825	83.410	3295	609.0(1113)		1.2808	23.068	3016											
52.825	23.362	2465	294.9(	805)	1.3088	23.070	2637	1.503	3964	2.433	0.56079	34.167	0.2379	5633	34.547	164.9	0.80	0.30
COMBUSTOR	0	28	21	4														
53.325	80.431	3376	606.6(1142)		1.2767	23.152	3042											
53.325	22.907	2543	289.2(	832)	1.3050	23.155	2670	1.493	3985	2.442	0.53787	34.167	0.2480	5687	33.313	166.5	0.80	0.33
COMBUSTOR	0	29	22	4														
54.075	78.301	3430	603.2(1161)		1.2739	23.213	3059											
54.075	21.085	2555	268.9(	835)	1.3038	23.217	2671	1.531	4090	2.448	0.50701	34.167	0.2631	5764	32.224	168.7	0.80	0.35
COMBUSTOR	0	30	23	3														
54.835	76.887	3460	599.9(1172)		1.2723	23.251	3068											
54.835	19.237	2537	246.9(	828)	1.3039	23.256	2660	1.580	4202	2.451	0.47946	34.167	0.2782	5834	31.313	170.7	0.80	0.36
COMBUSTOR	0	31	24	4														
55.760	75.030	3500	596.1(1186)		1.2701	23.299	3080											
55.760	17.503	2529	224.3(	824)	1.3035	23.305	2652	1.626	4313	2.455	0.45017	34.167	0.2963	5909	30.176	172.9	0.80	0.38
COMBUSTOR	0	32	25	5														
56.260	58.616	3893	594.3(1330)		1.2473	23.705	3191											
56.260	16.566	2989	231.2(	986)	1.2822	23.727	2834	1.504	4262	2.499	0.36267	34.167	0.3678	6087	24.022	178.1	0.80	0.52
COMBUSTOR	0	33	26	5														
56.315	68.585	3533	594.0(1198)		1.2681	23.337	3089											
56.315	12.487	2413	166.6(	781)	1.3071	23.344	2592	1.784	4624	2.465	0.36152	34.167	0.3690	6091	25.981	178.3	0.80	0.39
COMBUSTOR	0	34	27	3														
56.455	68.454	3538	593.5(1200)		1.2679	23.343	3091											
56.455	12.356	2412	163.8(	781)	1.3070	23.350	2591	1.790	4637	2.465	0.35892	34.167	0.3717	6100	25.864	178.5	0.80	0.39
COMBUSTOR	0	35	28	6														
56.535	59.849	3872	593.2(1322)		1.2487	23.685	3186											
56.535	16.050	2935	219.0(	966)	1.2843	23.705	2812	1.539	4327	2.496	0.36294	34.167	0.3675	6106	24.407	178.7	0.80	0.51
COMBUSTOR	0	36	29	3														
56.815	60.839	3851	592.2(1314)		1.2500	23.666	3180											
56.815	15.525	2885	207.8(	948)	1.2864	23.686	2791	1.571	4386	2.493	0.36174	34.167	0.3688	6124	24.657	179.2	0.80	0.50
COMBUSTOR	0	37	30	3														
57.041	62.214	3814	591.4(1300)		1.2523	23.629	3170											
57.041	14.915	2812	195.6(	921)	1.2894	23.646	2761	1.612	4450	2.489	0.36119	34.167	0.3693	6137	24.980	179.6	0.80	0.49

READING = 0063 BLOCK = 71 TIME = 192.454 MACH 0.0 PT = 926.749 TT = 2998.3

	P	T	H	GAMMA	MOLWT	GONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PFI	ETAC
COMBUSTOR	0	38	31 4														
57.765	66.609	3679	569.0(1251)	1.2601	23.498	3152											
57.765	12.960	2571	159.6(836)	1.2995	23.509	2658	1.744	4635	2.475	0.35546	34.167	0.3753	6168	25.605	180.5	0.80	0.45
COMBUSTOR	0	39	32 7														
58.785	120.541	2985	586.1(1001)	1.2947	22.833	2901											
58.785	6.787	1477	45.2(464)	1.3523	22.833	2086	2.494	5202	2.374	0.35320	34.167	0.3777	6161	28.555	180.9	0.80	0.22
COMBUSTOR	0	40	33 6														
60.795	55.800	4265	581.0(1465)	1.2219	24.139	3276											
60.795	20.650	3529	262.8(1180)	1.2550	24.195	3017	1.323	3990	2.517	0.36549	34.167	0.3650	6167	22.662	180.5	0.80	0.67
COMBUSTOR	0	41	34 4														
62.215	58.384	4167	577.2(1429)	1.2291	24.041	3254											
62.215	19.800	3370	241.2(1122)	1.2633	24.066	2965	1.383	4100	2.509	0.37539	34.167	0.3553	6156	23.917	180.2	0.80	0.63
COMBUSTOR	0	42	35 4														
64.679	52.447	4361	569.8(1500)	1.2139	24.275	3293											
64.679	22.700	3742	292.6(1259)	1.2431	24.343	3082	1.208	3724	2.524	0.35583	34.167	0.3749	6134	20.594	179.5	0.80	0.72
COMBUSTOR	0	43	36 4														
65.055	47.956	4452	568.6(1534)	1.2057	24.380	3308											
65.055	23.834	3941	329.9(1333)	1.2307	24.459	3140	1.101	3456	2.535	0.33080	34.167	0.4032	6132	17.766	179.5	0.80	0.76
COMBUSTOR REGEN		44	37 21														
65.055	47.956	4580	637.8(1585)	1.1975	24.339	3347											
65.055	24.627	4104	404.8(1397)	1.2208	24.436	3193	1.069	3414	2.550	0.33080	34.167	0.4032	6190	17.552	181.2	0.80	0.76
NOZZLE AE		45	38 5														
87.291	47.956	4452	568.6(1515)	1.2057	24.380	3308											
87.291	1.365	2146	*362.9(668)	1.3032	24.502	2382	2.866	6827	2.535	0.06886	34.167	1.9371	7927	7.307	232.0	0.80	0.76
NOZZLE PO		46	39 5														
87.291	47.956	4452	568.6(1515)	1.2057	24.380	3308											
87.291	0.486	1677	*522.2(509)	1.3241	24.502	2123	3.480	7388	2.535	0.03397	34.167	3.9264	8335	3.901	243.9	0.80	0.76
NOZZLE AE REGEN		47	40 5														
87.291	47.956	4580	637.8(1585)	1.1975	24.339	3347											
87.291	1.416	2260	*322.6(709)	1.2987	24.502	2441	2.840	6932	2.550	0.06886	34.167	1.9371	8064	7.419	236.0	0.80	0.76
NOZZLE PO REGEN		48	41 5														
87.291	47.956	4580	637.8(1585)	1.1975	24.339	3347											
87.291	0.486	1756	*495.9(536)	1.3201	24.502	2169	3.473	7532	2.550	0.03308	34.167	4.0326	8501	3.872	248.8	0.80	0.76
FICTIVE COMBUSTR		68	61 0														
65.055	352.741	5077	568.6(1766)	1.1882	25.091	3457											
65.055	0.486	1278	*936.3(372)	1.3396	25.340	1833	4.734	8678	2.384	0.05416	34.167	2.4632	9522	7.303	278.7	0.80	1.00
FICTIVE NOZZLE		69	62 0														
87.291	30.198	4400	550.1(1513)	1.2031	24.373	3286											
87.291	1.713	2484	*242.8(788)	1.2904	24.502	2551	2.470	6299	2.568	0.06886	34.167	1.9371	7539	6.741	220.7	0.80	0.76

READING = 0063 BLOCK = 71 TIME = 192.454 MACH 6.0 PI = 926.749 TT = 2998.3 PAGE 4

XABS	P-1B	P-0B	PDA	QOX	Q-1B	Q-0B	CAWALL	P-1B/PS0	P-1B/PT0	P-0B/PS0	P-0B/PI0
6.981E-01	1.320E 00	0.000	-5.480E-01	0.000	0.000	0.000	2.470E-02	2.714E 00	1.424E-03	0.000	0.000
1.836E 01	1.320E 00	0.000	-4.395E 01	0.000	0.000	0.000	1.654E 02	2.714E 00	1.424E-03	0.000	0.000
3.070E 01	2.715E 00	0.000	-2.075E 02	0.000	0.000	0.000	5.053E 02	5.581E 00	2.930E-03	0.000	0.000
3.508E 01	4.821E 00	0.000	-4.517E 02	0.000	0.000	0.000	6.804E 02	9.910E 00	5.202E-03	0.000	0.000
3.519E 01	4.842E 00	7.173E 00	-5.339E 02	0.000	0.000	0.000	6.854E 02	9.954E 00	5.225E-03	1.475E 01	7.740E-03
3.520E 01	4.845E 00	7.126E 00	-5.340E 02	0.000	0.000	0.000	6.857E 02	9.957E 00	5.226E-03	1.465E 01	7.690E-03
3.555E 01	4.910E 00	4.384E 00	-5.438E 02	0.000	0.000	0.000	7.209E 02	1.009E 01	5.298E-03	9.612E 00	4.730E-03
3.586E 01	4.867E 00	1.925E 00	-5.633E 02	-1.859E 02	-1.839E 02	0.000	7.529E 02	1.001E 01	5.251E-03	3.957E 00	2.077E-03
3.606E 01	4.840E 00	2.969E 00	-5.773E 02	-1.860E 02	-1.860E 02	0.000	7.729E 02	9.950E 00	5.223E-03	6.104E 00	3.204E-03
3.648E 01	5.224E 00	5.217E 00	-6.030E 02	-1.905E 02	-1.905E 02	0.000	8.164E 02	1.074E 01	5.637E-03	1.072E 01	5.629E-03
3.701E 01	5.210E 00	8.053E 00	-6.338E 02	-2.181E 02	-1.965E 02	-2.154E 01	8.726E 02	1.071E 01	5.622E-03	1.655E 01	8.689E-03
3.732E 01	5.046E 00	9.737E 00	-6.483E 02	-2.290E 02	-2.003E 02	-2.876E 01	9.063E 02	1.037E 01	5.445E-03	2.002E 01	1.051E-02
3.803E 01	4.680E 00	1.624E 01	-6.652E 02	-2.556E 02	-2.090E 02	-4.455E 01	9.834E 02	9.621E 00	5.050E-03	3.340E 01	1.753E-02
3.834E 01	6.720E 00	1.915E 01	-6.634E 02	-2.651E 02	-2.136E 02	-5.153E 01	1.018E 03	1.381E 01	7.251E-03	3.937E 01	2.066E-02
3.875E 01	9.345E 00	1.855E 01	-6.659E 02	-2.813E 02	-2.208E 02	-6.046E 01	1.064E 03	1.921E 01	1.008E-02	3.813E 01	2.001E-02
3.881E 01	9.765E 00	1.845E 01	-6.665E 02	-2.840E 02	-2.221E 02	-6.189E 01	1.072E 03	2.008E 01	1.054E-02	3.793E 01	1.991E-02
3.901E 01	1.103E 01	1.900E 01	-6.673E 02	-2.925E 02	-2.264E 02	-6.616E 01	1.094E 03	2.268E 01	1.190E-02	3.905E 01	2.050E-02
3.932E 01	1.715E 01	1.987E 01	-6.749E 02	-3.071E 02	-2.341E 02	-7.302E 01	1.130E 03	3.525E 01	1.850E-02	4.086E 01	2.145E-02
3.950E 01	2.055E 01	1.462E 01	-6.850E 02	-3.167E 02	-2.389E 02	-7.680E 01	1.150E 03	4.225E 01	2.217E-02	3.006E 01	1.578E-02
3.981E 01	2.110E 01	5.175E 00	-7.155E 02	-3.320E 02	-2.485E 02	-8.349E 01	1.187E 03	4.339E 01	2.277E-02	1.064E 01	5.584E-03
4.000E 01	2.143E 01	5.053E 00	-7.378E 02	-3.422E 02	-2.548E 02	-8.736E 01	1.209E 03	4.406E 01	2.313E-02	1.039E 01	5.453E-03
4.040E 01	2.572E 01	4.791E 00	-7.882E 02	-3.655E 02	-2.694E 02	-9.609E 01	1.256E 03	5.287E 01	2.775E-02	9.846E 00	5.169E-03
4.041E 01	2.582E 01	4.784E 00	-7.894E 02	-3.661E 02	-2.698E 02	-9.632E 01	1.257E 03	5.309E 01	2.786E-02	9.835E 00	5.162E-03
4.130E 01	3.536E 01	4.199E 00	-9.242E 02	-4.391E 02	-3.060E 02	-1.331E 02	1.362E 03	7.266E 01	3.815E-02	8.633E 00	4.531E-03
4.131E 01	3.546E 01	4.193E 00	-9.258E 02	-4.401E 02	-3.064E 02	-1.337E 02	1.363E 03	7.290E 01	3.827E-02	8.619E 00	4.524E-03
4.137E 01	3.616E 01	4.150E 00	-9.365E 02	-4.469E 02	-3.093E 02	-1.377E 02	1.371E 03	7.434E 01	3.902E-02	8.532E 00	4.478E-03
4.150E 01	3.750E 01	5.107E 00	-9.575E 02	-4.605E 02	-3.149E 02	-1.457E 02	1.386E 03	7.709E 01	4.046E-02	1.050E 01	5.511E-03
4.246E 01	2.239E 01	1.245E 01	-1.049E 03	-5.893E 02	-3.660E 02	-2.233E 02	1.501E 03	4.602E 01	2.416E-02	2.559E 01	1.343E-02
4.409E 01	4.550E 01	2.495E 01	-1.126E 03	-8.856E 02	-5.002E 02	-3.854E 02	1.699E 03	9.353E 01	4.909E-02	5.130E 01	2.693E-02
4.431E 01	4.854E 01	2.629E 01	-1.143E 03	-9.315E 02	-5.229E 02	-4.086E 02	1.725E 03	9.978E 01	5.237E-02	5.405E 01	2.837E-02
4.480E 01	5.546E 01	2.934E 01	-1.186E 03	-1.049E 03	-5.788E 02	-4.705E 02	1.785E 03	1.140E 02	5.985E-02	6.031E 01	3.166E-02
4.481E 01	5.543E 01	2.940E 01	-1.187E 03	-1.052E 03	-5.800E 02	-4.718E 02	1.786E 03	1.139E 02	5.981E-02	6.044E 01	3.172E-02
4.625E 01	5.036E 01	3.835E 01	-1.220E 03	-1.447E 03	-7.465E 02	-7.010E 02	1.963E 03	1.035E 02	5.434E-02	7.885E 01	4.139E-02
4.626E 01	5.032E 01	3.842E 01	-1.220E 03	-1.450E 03	-7.476E 02	-7.028E 02	1.964E 03	1.035E 02	5.430E-02	7.898E 01	4.145E-02
4.731E 01	4.662E 01	4.495E 01	-1.141E 03	-1.792E 03	-8.611E 02	-8.908E 02	2.094E 03	9.585E 01	5.031E-02	9.240E 01	4.850E-02
4.733E 01	4.655E 01	4.510E 01	-1.139E 03	-1.799E 03	-8.637E 02	-8.953E 02	2.097E 03	9.569E 01	5.022E-02	9.272E 01	4.866E-02
4.811E 01	4.405E 01	4.214E 01	-1.035E 03	-1.971E 03	-9.433E 02	-1.028E 03	2.194E 03	9.056E 01	4.753E-02	8.664E 01	4.547E-02
4.877E 01	3.961E 01	3.961E 01	-9.067E 02	-2.140E 03	-1.009E 03	-1.131E 03	2.277E 03	8.142E 01	4.274E-02	8.142E 01	4.274E-02
4.878E 01	3.957E 01	3.957E 01	-9.046E 02	-2.142E 03	-1.010E 03	-1.132E 03	2.278E 03	8.134E 01	4.270E-02	8.134E 01	4.270E-02
4.931E 01	3.755E 01	3.755E 01	-7.981E 02	-2.267E 03	-1.060E 03	-1.207E 03	2.345E 03	7.719E 01	4.051E-02	7.719E 01	4.051E-02
5.072E 01	3.344E 01	3.344E 01	-5.357E 02	-2.572E 03	-1.186E 03	-1.387E 03	2.522E 03	6.874E 01	3.608E-02	6.874E 01	3.608E-02
5.282E 01	2.336E 01	2.336E 01	-2.230E 02	-2.959E 03	-1.350E 03	-1.609E 03	2.789E 03	4.803E 01	2.521E-02	4.803E 01	2.521E-02
5.332E 01	2.291E 01	2.291E 01	-1.628E 02	-3.040E 03	-1.385E 03	-1.655E 03	2.852E 03	4.709E 01	2.472E-02	4.709E 01	2.472E-02
5.407E 01	2.108E 01	2.108E 01	-7.772E 01	-3.158E 03	-1.435E 03	-1.723E 03	2.948E 03	4.335E 01	2.275E-02	4.335E 01	2.275E-02
5.483E 01	1.924E 01	1.924E 01	4.353E-01	-3.271E 03	-1.482E 03	-1.789E 03	3.046E 03	3.955E 01	2.076E-02	3.955E 01	2.076E-02
5.576E 01	1.750E 01	1.750E 01	8.565E 01	-3.399E 03	-1.535E 03	-1.865E 03	3.164E 03	3.598E 01	1.889E-02	3.598E 01	1.889E-02
5.626E 01	1.657E 01	1.657E 01	2.668E 02	-3.464E 03	-1.560E 03	-1.904E 03	3.209E 03	3.406E 01	1.787E-02	3.406E 01	1.787E-02
5.631E 01	8.512E 00	1.646E 01	2.715E 02	-3.470E 03	-1.563E 03	-1.908E 03	3.216E 03	1.750E 01	9.185E-03	3.384E 01	1.776E-02
5.645E 01	8.512E 00	1.620E 01	2.822E 02	-3.488E 03	-1.569E 03	-1.919E 03	3.234E 03	1.790E 01	9.185E-03	3.330E 01	1.748E-02
5.653E 01	1.605E 01	1.605E 01	2.886E 02	-3.497E 03	-1.573E 03	-1.925E 03	3.245E 03	3.300E 01	1.732E-02	3.300E 01	1.732E-02
5.681E 01	1.552E 01	1.552E 01	3.092E 02	-3.531E 03	-1.585E 03	-1.946E 03	3.280E 03	3.192E 01	1.675E-02	3.192E 01	1.675E-02
5.704E 01	1.491E 01	1.491E 01	3.241E 02	-3.558E 03	-1.595E 03	-1.963E 03	3.309E 03	3.066E 01	1.609E-02	3.066E 01	1.609E-02
5.776E 01	1.296E 01	1.296E 01	3.618E 02	-3.642E 03	-1.623E 03	-2.018E 03	3.402E 03	2.664E 01	1.398E-02	2.664E 01	1.398E-02
5.878E 01	6.787E 00	6.787E 00	3.847E 02	-3.740E 03	-1.658E 03	-2.082E 03	3.532E 03	1.395E 01	7.324E-03	1.395E 01	7.324E-03
6.079E 01	2.065E 01	2.065E-01	3.879E 02	-3.916E 03	-1.713E 03	-2.203E 03	3.790E 03	4.245E 01	2.228E-02	4.245E 01	2.228E-02
6.221E 01	1.980E 01	1.980E 01	3.879E 02	-4.047E 03	-1.749E 03	-2.298E 03	3.972E 03	4.070E 01	2.136E-02	4.070E 01	2.136E-02

READING # 0063 BLOCK # .71 TIME = 192.454 MACH 6.0 PI = 926.749 TT = 2998.3

XABS	P=IB	P=OB	PDA	QOX	Q=IB	Q=OB	CAWALL	P=IB/PSO	P=IB/PTO	P=OB/PSO	P=OB/PTO
6.468E 01	2.270E 01	2.270E 01	3.879E 02	-4.297E 03	-1.824E 03	-2.472E 03	4.289E 03	4.667E 01	2.449E-02	4.667E 01	2.449E-02
6.505E 01	2.452E 01	2.314E 01	3.879E 02	-4.339E 03	-1.837E 03	-2.502E 03	4.337E 03	5.042E 01	2.646E-02	4.758E 01	2.497E-02
6.509E 01	2.452E 01	2.319E 01	3.879E 02	-4.343E 03	-1.839E 03	-2.505E 03	4.342E 03	5.042E 01	2.646E-02	4.767E 01	2.502E-02
6.529E 01	2.324E 01	2.342E 01	3.879E 02	-4.366E 03	-1.846E 03	-2.520E 03	4.368E 03	4.777E 01	2.507E-02	4.816E 01	2.528E-02
6.695E 01	1.254E 01	1.195E 01	5.856E 02	-4.521E 03	-1.893E 03	-2.628E 03	4.583E 03	2.578E 01	1.353E-02	2.457E 01	1.289E-02
6.762E 01	9.180E 00	1.132E 01	8.132E 02	-4.572E 03	-1.908E 03	-2.664E 03	4.665E 03	1.887E 01	9.906E-03	2.328E 01	1.222E-02
6.839E 01	5.320E 00	8.612E 00	1.047E 03	-4.626E 03	-1.922E 03	-2.704E 03	4.760E 03	1.094E 01	5.740E-03	1.770E 01	9.293E-03
6.911E 01	4.218E 00	6.075E 00	1.201E 03	-4.675E 03	-1.933E 03	-2.742E 03	4.848E 03	8.672E 00	4.552E-03	1.249E 01	6.555E-03
6.972E 01	3.285E 00	5.000E 00	1.300E 03	-4.714E 03	-1.940E 03	-2.774E 03	4.922E 03	6.753E 00	3.545E-03	1.028E 01	5.395E-03
7.067E 01	2.328E 00	3.325E 00	1.409E 03	-4.768E 03	-1.949E 03	-2.820E 03	5.036E 03	4.786E 00	2.512E-03	6.836E 00	3.588E-03
7.110E 01	1.895E 00	3.090E 00	1.446E 03	-4.790E 03	-1.952E 03	-2.838E 03	5.088E 03	3.896E 00	2.045E-03	6.353E 00	3.334E-03
7.263E 01	1.189E 00	2.255E 00	1.544E 03	-4.850E 03	-1.961E 03	-2.889E 03	5.273E 03	2.445E 00	1.283E-03	4.636E 00	2.433E-03
7.278E 01	1.120E 00	1.960E 00	1.550E 03	-4.854E 03	-1.962E 03	-2.893E 03	5.290E 03	2.302E 00	1.209E-03	4.029E 00	2.115E-03
7.353E 01	1.070E 00	4.850E-01	1.590E 03	-4.880E 03	-1.966E 03	-2.915E 03	5.374E 03	2.199E 00	1.154E-03	9.971E-01	5.233E-04
7.354E 01	1.069E 00	4.771E-01	1.591E 03	-4.881E 03	-1.966E 03	-2.915E 03	5.375E 03	2.198E 00	1.154E-03	9.808E-01	5.148E-04
7.486E 01	9.800E-01	0.000	1.613E 03	-4.932E 03	-1.971E 03	-2.960E 03	5.427E 03	2.015E 00	1.057E-03	0.000	0.000
7.771E 01	2.515E 00	0.000	1.683E 03	-4.941E 03	-1.981E 03	-2.960E 03	5.525E 03	5.170E 00	2.714E-03	0.000	0.000
8.161E 01	1.750E 00	0.000	1.774E 03	-4.950E 03	-1.989E 03	-2.960E 03	5.630E 03	3.598E 00	1.888E-03	0.000	0.000
8.442E 01	1.300E 00	0.000	1.808E 03	-4.957E 03	-1.996E 03	-2.960E 03	5.684E 03	2.673E 00	1.403E-03	0.000	0.000
8.728E 01	1.900E 00	0.000	1.847E 03	-4.969E 03	-2.008E 03	-2.960E 03	5.707E 03	3.906E 00	2.050E-03	0.000	0.000
8.729E 01	1.901E 00	0.000	1.847E 03	-4.969E 03	-2.008E 03	-2.960E 03	5.707E 03	3.909E 00	2.052E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.363E 02	1.363E 02	2.149E-03	5.202E-02
4.041E 01	2.293E-01	1.366E 02	2.419E-03	4.192E-02
4.130E 01	2.169E 01	1.584E 02	2.545E-03	4.999E-02
4.131E 01	2.323E-01	1.587E 02	2.341E-03	5.300E-02
4.137E 01	1.462E 00	1.601E 02	2.315E-03	5.397E-02
4.150E 01	2.796E 00	1.629E 02	2.328E-03	5.591E-02
4.246E 01	2.152E 01	1.845E 02	2.379E-03	4.707E-02
4.409E 01	3.458E 01	2.190E 02	2.456E-03	7.176E-02
4.431E 01	4.215E 00	2.233E 02	2.540E-03	7.193E-02
4.480E 01	9.503E 00	2.328E 02	2.591E-03	7.477E-02
4.481E 01	1.862E-01	2.329E 02	2.635E-03	7.364E-02
4.625E 01	2.798E 01	2.609E 02	2.966E-03	6.781E-02
4.626E 01	1.839E-01	2.611E 02	2.616E-03	7.665E-02
4.731E 01	1.709E 01	2.782E 02	2.605E-03	7.631E-02
4.733E 01	3.958E-01	2.786E 02	2.694E-03	7.393E-02
4.811E 01	1.206E 01	2.907E 02	2.661E-03	7.144E-02
4.877E 01	1.037E 01	3.010E 02	2.964E-03	6.255E-02
4.878E 01	1.522E-01	3.012E 02	2.676E-03	6.920E-02
4.931E 01	7.445E 00	3.086E 02	2.643E-03	6.709E-02
5.072E 01	1.822E 01	3.268E 02	2.623E-03	6.114E-02
5.282E 01	2.501E 01	3.519E 02	2.643E-03	4.700E-02
5.332E 01	5.796E 00	3.577E 02	2.718E-03	4.539E-02
5.407E 01	8.549E 00	3.662E 02	2.727E-03	4.249E-02
5.483E 01	8.434E 00	3.746E 02	2.725E-03	3.973E-02
5.576E 01	9.935E 00	3.846E 02	2.710E-03	3.714E-02
5.626E 01	3.289E 00	3.879E 02	2.687E-03	3.360E-02
5.631E 01	4.864E-01	3.883E 02	2.836E-03	2.691E-02
5.645E 01	1.264E 00	3.896E 02	2.650E-03	2.666E-02
5.653E 01	7.394E-01	3.903E 02	3.098E-03	2.877E-02
5.681E 01	2.592E 00	3.929E 02	2.826E-03	3.076E-02
5.704E 01	2.015E 00	3.950E 02	2.805E-03	3.020E-02
5.776E 01	6.515E 00	4.015E 02	2.757E-03	2.797E-02
5.878E 01	9.595E 00	4.111E 02	2.665E-03	1.853E-02
6.079E 01	1.689E 01	4.280E 02	2.451E-03	4.138E-02
6.221E 01	1.152E 01	4.395E 02	2.978E-03	3.346E-02
6.468E-01	2.102E 01	4.605E 02	2.996E-03	3.482E-02
6.505E 01	2.835E 00	4.633E 02	3.132E-03	3.301E-02
6.509E 01	2.906E-01	4.636E 02	3.241E-03	3.346E-02
6.529E 01	1.484E 00	4.651E 02	3.235E-03	3.327E-02
6.695E 01	1.268E 01	4.778E 02	3.101E-03	2.493E-02
6.762E 01	4.738E 00	4.825E 02	3.071E-03	2.248E-02
6.839E 01	5.021E 00	4.875E 02	3.010E-03	1.700E-02
6.911E 01	4.058E 00	4.916E 02	2.963E-03	1.453E-02
6.972E 01	3.022E 00	4.946E 02	2.931E-03	1.251E-02
7.067E 01	4.002E 00	4.986E 02	2.875E-03	9.331E-03
7.110E 01	1.576E 00	5.002E 02	2.857E-03	8.502E-03
7.263E 01	4.840E 00	5.050E 02	2.802E-03	6.432E-03
7.278E 01	3.896E-01	5.054E 02	2.784E-03	5.900E-03
7.353E 01	1.507E 00	5.069E 02	2.679E-03	3.471E-03
7.354E 01	2.262E-03	5.069E 02	2.678E-03	3.457E-03
7.486E 01	7.831E-01	5.077E 02	2.707E-03	4.150E-03
7.771E 01	2.214E 00	5.099E 02	2.833E-03	8.470E-03
8.161E 01	2.744E 00	5.127E 02	2.762E-03	6.407E-03
8.442E 01	1.158E 00	5.138E 02	2.706E-03	5.076E-03
8.728E 01	4.926E-01	5.143E 02	2.750E-03	6.755E-03
8.729E 01	0.000	5.143E 02	2.750E-03	6.758E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1259.	(LBF)
MEASURED THRUST	1448.	(LBF)
CALCULATED SPECIFIC IMPULSE	1646.	(LBF*SEC/LBM)
MEASURED SPECIFIC IMPULSE	1893.	(LBF*SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.4030	
MEASURED THRUST COEFFICIENT	0.4635	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	7669.	(LBF)
NET THRUST	1389.	(LBF)
SPECIFIC IMPULSE	1816.	(LBF*SEC/LBM)
THRUST COEFFICIENT	0.4447	

MOMENTUM AND FORCES

INLET FRICTION DRAG	136.3	(LBF)
INLET MOMENTUM CHANGE	-924.6	(LBF)
COMBUSTOR FRICTION DRAG	327.0	(LBF)
COMBUSTOR STRUT DRAG	0.81	(LBF)
COMBUSTOR MOMENTUM CHANGE	776.	(LBF)
NOZZLE FRICTION DRAG	51.00	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1408.	(LBF)
NOZZLE PRESSURE INTEGRAL	1459.	(LBF)
EXTERNAL FRICTION DRAG	52.87	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1260.	(LBF)
TOTAL EXTERNAL DRAG	-1313.	(LBF)
TOTAL STRUT DRAG	0.81	(LBF)
CAVITY FORCE	-1011.	(LBF)
CALCULATED LOAD CELL FORCE	-1064.	(LBF)
MEASURED LOAD CELL FORCE	-875.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, 0.0, -150.8, -118.4,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3148	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.199	(IN)
NOZZLE SHROUD TRAILING EDGE	73.539	(IN)
NOZZLE PLUG TRAILING EDGE	87.291	(IN)
STRUT LEADING EDGE	56.455	(IN)
STRUT TRAILING EDGE	65.055	(IN)
COMBUSTOR EXIT	65.055	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9847	
ADDITIVE DRAG COEFFICIENT	0.0005	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1628	
DELTA PT2	0.1487	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.3806	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1652	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8907	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9040	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9428	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8941	
ENTHALPY AT P0 = SUPERSONIC	-2.35	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	31.87	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0229	
EQUIVALENCE RATIO	0.799	
COMBUSTOR EFFICIENCY	0.757	
TOTAL PRESSURE RATIO	0.1360	
COMBUSTOR EFFECTIVENESS	0.7150	
INJECTOR DISCHARGE COEFFICIENTS	0.8439, 0.7239, 0.7703, 0.7033	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9510	
NOZZLE COEFFICIENT = CT	0.8756	
PROCESS EFFICIENCY	0.8781	
KINETIC ENERGY EFFICIENCY	0.8900	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.300	B
1C	44.300	
2A	48.775	D
2C	46.250	E
3A	54.065	
3B	56.250	
4	44.800	

Reading 63

t = 216.75 sec.

RAMJET PERFORMANCE

3/03/75

170

SUMMARY REPORT

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	M/A	M	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5															
0.000	925.749	2981	665.2(	791)	1.2945	28.832	2579											
0.000	0.483	402	*32.5(	97)	1.3987	28.831	985	5.998	5909	1.811	0.13219	33.392	0.9862	6254	12.138	187.3		
SPIKE TIP NS		2	0 4															
0.600	22.512	2980	665.2(	791)	1.2944	28.831	2579											
0.600	20.346	2912	644.7(	771)	1.2965	28.831	2552	0.397	1014	2.068	0.13219	33.392	0.9862	6192	2.084	185.4		
WIND TUNNEL		3	0 0															
0.000	925.749	2981	665.2(	791)	1.2945	28.832	2579											
0.000	0.474	400	*33.0(	96)	1.3987	28.831	983	6.015	5911	1.811	0.13057	32.982	0.9862	6179	11.993	187.3		
SPIKE TIP NS		4	0 0															
0.600	22.512	2980	665.2(	791)	1.2944	28.831	2579											
0.600	20.407	2914	645.3(	772)	1.2965	28.831	2553	0.392	999	2.068	0.13057	32.982	0.9862	6179	2.028	187.4		
INLET THROAT		5	0 4															
40.400	355.200	2929	649.6(	776)	1.2961	28.831	2559											
40.400	19.726	1444	228.1(	357)	1.3522	28.831	1835	2.502	4593	1.872	1.17028	33.392	0.1114	5329	83.525	159.6		
INLET UPNRSK		6	0 3															
40.400	355.200	2929	649.6(	776)	1.2961	28.831	2559											
40.400	16.938	1388	213.2(	343)	1.3559	28.831	1801	2.594	4673	1.872	1.06389	33.392	0.1225	5381	77.261	161.2		
INLET DNNRSK		7	0 4															
40.400	152.317	2929	649.6(	776)	1.2961	28.831	2559											
40.400	130.653	2828	619.1(	746)	1.2992	28.831	2517	0.490	1234	1.930	1.06389	33.392	0.1225	5381	20.403	161.2		
COMBUSTOR	0	8	1 21															
40.410	295.126	2893	652.5(	798)	1.2983	27.602	2601											
40.410	15.599	1403	213.2(	362)	1.3558	27.601	1851	2.533	4688	1.952	1.17423	33.508	0.1114	5328	85.554	159.0	0.12	0.07
COMBUSTOR	0	9	2 21															
41.298	220.964	2828	656.2(	809)	1.3019	26.478	2630											
41.298	19.993	1569	268.8(	424)	1.3481	26.478	1993	2.209	4403	2.031	1.18056	33.621	0.1112	5170	80.774	153.8	0.24	0.04
COMBUSTOR	0	10	3 21															
41.308	231.010	2788	656.1(	797)	1.3038	26.436	2615											
41.308	20.042	1586	269.3(	412)	1.3508	26.435	1969	2.234	4400	2.024	1.18091	33.621	0.1112	5168	80.743	153.7	0.24	0.01
COMBUSTOR	0	11	4 21															
41.373	229.460	2781	655.9(	795)	1.3041	26.429	2612											
41.373	20.364	1531	272.6(	414)	1.3506	26.429	1972	2.221	4380	2.024	1.18223	33.621	0.1110	5156	80.463	153.3	0.24	0.00
COMBUSTOR	0	12	5 21															
41.500	225.220	2778	655.3(	794)	1.3042	26.428	2611											
41.500	22.267	1572	285.0(	426)	1.3484	26.428	1997	2.155	4305	2.025	1.18224	33.621	0.1110	5132	79.093	152.6	0.24	0.00
COMBUSTOR	0	13	6 3															
42.460	195.693	2790	650.3(	797)	1.3034	26.457	2614											
42.460	30.724	1778	336.9(	486)	1.3386	26.456	2115	1.872	3960	2.036	1.17116	33.621	0.1121	5020	72.069	149.3	0.24	0.02
COMBUSTOR	0	14	7 5															
44.093	137.047	3395	639.4(	981)	1.2749	27.156	2815											
44.093	57.330	2799	442.3(	790)	1.2948	27.159	2576	1.219	3140	2.106	1.13041	33.621	0.1161	4986	55.159	148.3	0.24	0.60
COMBUSTOR	0	15	8 3															
44.310	135.866	3414	637.7(	987)	1.2739	27.183	2820											
44.310	59.225	2842	448.2(	804)	1.2930	27.186	2592	1.188	3079	2.107	1.12878	33.621	0.1163	4982	54.012	148.2	0.24	0.62
COMBUSTOR	0	16	9 3															
44.800	133.549	3441	633.6(	995)	1.2725	27.228	2827											
44.800	63.500	2923	461.2(	829)	1.2898	27.231	2624	1.119	2936	2.109	1.12421	33.621	0.1168	4968	51.304	147.8	0.24	0.66
COMBUSTOR	0	17	10 0															
44.808	133.503	3440	633.5(	995)	1.2725	27.228	2827											
44.808	63.503	2923	461.2(	829)	1.2898	27.231	2624	1.119	2936	2.109	1.12388	33.621	0.1168	4968	51.275	147.7	0.24	0.66
COMBUSTOR	0	18	11 6															
46.250	125.169	3021	643.5(	966)	1.2942	23.939	2850											
46.250	64.089	2587	487.9(	813)	1.3085	23.940	2651	1.052	2790	2.283	1.07073	33.974	0.1239	4979	46.423	146.6	0.61	0.19

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	F	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 2														
46.260	125.144	3023	643.4(967)	1.2941	23.941	2850											
46.260	64.093	2589	487.8(814)	1.3084	23.942	2652	1.052	2790	2.283	1.07015	33.974	0.1239	4981	46.403	146.6	0.61	0.19
COMBUSTOR	0	20	13 4														
47.310	120.128	3246	632.6(1042)	1.2834	24.189	2926											
47.310	64.520	2822	477.9(891)	1.2974	24.191	2743	1.014	2782	2.303	0.99579	33.974	0.1332	5139	43.058	151.5	0.61	0.29
COMBUSTOR	0	21	14 2														
47.333	120.115	3248	632.4(1043)	1.2833	24.192	2927											
47.333	64.687	2826	478.2(892)	1.2973	24.194	2745	1.012	2778	2.303	0.99539	33.974	0.1333	5141	42.967	151.5	0.61	0.30
COMBUSTOR	0	22	15 4														
48.110	115.368	3462	624.9(1115)	1.2727	24.430	2994											
48.110	64.547	3049	471.3(967)	1.2867	24.433	2826	0.981	2772	2.320	0.92789	33.974	0.1430	5291	39.978	155.7	0.61	0.39
COMBUSTOR	0	23	16 6														
48.773	108.887	3143	638.4(1116)	1.2899	21.685	3049											
48.773	53.295	2668	448.5(929)	1.3056	21.686	2826	1.091	3082	2.505	0.86420	34.353	0.1552	5410	41.395	157.5	1.00	0.21
COMBUSTOR	0	24	17 2														
48.783	108.812	3145	638.3(1117)	1.2898	21.688	3050											
48.783	53.185	2669	448.0(930)	1.3055	21.689	2826	1.092	3086	2.505	0.86307	34.353	0.1554	5412	41.394	157.5	1.00	0.22
COMBUSTOR	0	25	18 4														
49.313	105.193	3278	634.2(1167)	1.2834	21.815	3097											
49.313	47.350	2737	416.0(953)	1.3014	21.817	2849	1.160	3304	2.519	0.80718	34.353	0.1662	5543	41.450	161.4	1.00	0.25
COMBUSTOR	0	26	19 4														
50.723	96.611	3591	624.3(1286)	1.2677	22.126	3198											
50.723	38.394	2937	354.4(1025)	1.2903	22.132	2918	1.259	3674	2.548	0.68794	34.353	0.1950	5841	39.284	170.0	1.00	0.35
COMBUSTOR	0	27	20 4														
52.823	89.200	3838	611.5(1380)	1.2539	22.391	3269											
52.823	27.712	2996	258.3(1042)	1.2845	22.406	2922	1.459	4204	2.569	0.56385	34.353	0.2379	6177	36.835	179.8	1.00	0.43
COMBUSTOR	0	28	21 3														
53.323	88.329	3857	608.8(1387)	1.2527	22.417	3274											
53.323	25.670	2967	235.3(1031)	1.2851	22.433	2907	1.487	4323	2.571	0.54080	34.353	0.2480	6240	36.328	181.6	1.00	0.44
COMBUSTOR	0	29	22 4														
54.073	86.757	3893	604.8(1401)	1.2505	22.461	3283											
54.073	23.114	2944	206.5(1021)	1.2852	22.479	2893	1.543	4464	2.574	0.50978	34.353	0.2631	6324	35.366	184.1	1.00	0.45
COMBUSTOR	0	30	23 3														
54.833	86.276	3893	601.0(1401)	1.2504	22.470	3282											
54.833	20.625	2875	175.0(993)	1.2875	22.488	2860	1.614	4617	2.574	0.48207	34.353	0.2782	6399	34.588	186.3	1.00	0.46
COMBUSTOR	0	31	24 4														
55.760	83.925	3944	596.7(1420)	1.2472	22.531	3295											
55.760	18.922	2882	150.7(995)	1.2864	22.553	2859	1.652	4724	2.579	0.45257	34.353	0.2964	6480	33.224	188.6	1.00	0.47
COMBUSTOR	0	32	25 5														
56.258	65.401	4393	594.5(1594)	1.2155	22.995	3398											
56.258	18.007	3441	159.5(1205)	1.2584	23.072	3055	1.527	4666	2.622	0.36452	34.353	0.3679	6679	26.431	194.4	1.00	0.62
COMBUSTOR	0	33	26 5														
56.313	76.458	3997	594.3(1440)	1.2435	22.589	3307											
56.313	13.697	2783	85.2(955)	1.2889	22.616	2808	1.797	5047	2.590	0.36349	34.353	0.3690	6683	28.511	194.6	1.00	0.49
COMBUSTOR	0	34	27 3														
56.453	76.264	4004	593.7(1443)	1.2430	22.597	3309											
56.453	13.568	2785	82.2(956)	1.2887	22.624	2808	1.802	5059	2.590	0.36088	34.353	0.3717	6694	28.374	194.8	1.00	0.49
COMBUSTOR	0	35	28 7														
56.533	66.764	4372	593.4(1586)	1.2173	22.976	3394											
56.533	17.502	3385	146.0(1183)	1.2611	23.049	3034	1.559	4732	2.619	0.36492	34.353	0.3675	6700	26.834	195.0	1.00	0.61
COMBUSTOR	0	36	29 3														
56.813	67.792	4352	592.3(1578)	1.2189	22.958	3389											
56.813	16.987	3334	133.7(1163)	1.2634	23.028	3016	1.588	4790	2.617	0.36372	34.353	0.3688	6719	27.075	195.6	1.00	0.60
COMBUSTOR	0	37	30 4														
57.039	69.719	4293	591.4(1555)	1.2233	22.899	3377											
57.039	16.154	3222	116.6(1120)	1.2667	22.959	2975	1.638	4874	2.611	0.36303	34.353	0.3695	6733	27.497	196.0	1.00	0.58

READING = 0063 BLOCK = .98 TINF = 216.754 MACH 6.0 PT = 925.749 TT = 2980.5

	P	T	M		GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	W	A/AC	PORTH	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	51	4														
57.763	76.981	4080	588.5	(1472)	1.2383	22.686	3327											
57.763	13.485	2841	64.3	(976)	1.2856	22.719	2827	1.812	5122	2.592	0.35741	34.353	0.3753	6765	26.448	196.9	1.00	0.52
COMBUSTOR	0	39	32	7														
58.783	137.782	3348	585.1	(1191)	1.2789	21.987	3111											
58.783	7.350	1673	-59.9	(553)	1.3396	21.989	2251	2.524	5681	2.494	0.35513	34.353	0.3777	6777	31.354	197.3	1.00	0.31
COMBUSTOR	0	40	33	6														
60.793	63.729	4680	579.0	(1705)	1.1918	23.337	3447											
60.793	20.750	3874	171.9	(1371)	1.2317	23.488	3178	1.420	4514	2.632	0.36748	34.353	0.3650	6759	25.778	196.6	1.00	0.73
COMBUSTOR	0	41	34	4														
62.213	66.501	4593	574.6	(1671)	1.1995	23.255	3432											
62.213	20.244	3725	153.3	(1313)	1.2414	23.579	3136	1.464	4591	2.625	0.37744	34.353	0.3553	6745	26.931	196.3	1.00	0.70
COMBUSTOR	0	42	35	5														
64.677	58.579	4857	566.1	(1774)	1.1739	23.559	3469											
64.677	25.889	4256	222.9	(1521)	1.2017	23.770	3271	1.267	4144	2.642	0.35777	34.353	0.3749	6719	23.041	195.6	1.00	0.83
COMBUSTOR	0	43	36	5														
65.053	53.222	4983	564.7	(1824)	1.1608	23.694	3484											
65.053	25.254	4525	269.0	(1628)	1.1759	23.944	3324	1.157	3846	2.652	0.33261	34.353	0.4032	6715	19.880	195.5	1.00	0.91
COMBUSTOR REGEN	44	37	4															
65.053	53.222	5054	625.0	(1855)	1.1576	23.621	3509											
65.053	26.633	4636	344.3	(1676)	1.1692	23.874	3360	1.115	3748	2.664	0.33261	34.353	0.4032	6752	19.372	196.6	1.00	0.91
NOZZLE AE	45	38	5															
87.289	53.222	4983	564.7	(1794)	1.1608	23.694	3484											
87.289	1.632	2758	-551.0	(917)	1.2709	24.205	2683	2.784	7472	2.652	0.06924	34.353	1.9371	8787	8.040	255.8	1.00	0.91
NOZZLE PO	46	39	5															
87.289	53.222	4983	564.7	(1794)	1.1608	23.694	3484											
87.289	0.483	2109	-793.3	(676)	1.2946	24.206	2368	3.481	8243	2.652	0.02955	34.353	4.5396	9363	3.785	272.5	1.00	0.91
NOZZLE AE REGEN	47	40	5															
87.289	53.222	5054	625.0	(1855)	1.1576	23.621	3509											
87.289	1.678	2862	-510.8	(957)	1.2670	24.204	2729	2.762	7539	2.664	0.06924	34.353	1.9371	8882	8.112	258.5	1.00	0.91
NOZZLE PO REGEN	48	41	5															
87.289	53.222	5054	625.0	(1855)	1.1576	23.621	3509											
87.289	0.483	2180	-767.6	(702)	1.2918	24.206	2405	3.471	8347	2.664	0.02894	34.353	4.6340	9486	3.755	276.1	1.00	0.91
FICTIVE COMBUSTR	60	61	0															
65.053	355.200	5312	564.7	(1955)	1.1695	24.044	3584											
65.053	0.483	1469	-1148.2	(449)	1.3833	24.578	1983	4.669	9258	2.492	0.04838	34.353	2.7724	10228	6.960	297.7	1.00	1.00
FICTIVE NOZZLE	69	62	0															
87.289	29.714	4893	540.9	(1787)	1.1563	23.657	3448											
87.289	2.165	3266	-348.5	(1114)	1.2483	24.194	2894	2.305	6671	2.696	0.06924	34.353	1.9371	8197	7.179	238.6	1.00	0.91

READING = 0063 BLOCK = 98 TIME = 216.754 MACH 6.0 PT = 925.749 TT = 2980.5 PAGE 4

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/P50	P-IB/PTO	P-OB/P30	P-OB/PIO
6.981E-01	1.325E 00	0.000	-5.484E-01	0.000	0.000	0.000	2.470E-02	2.746E 00	1.451E-03	0.000	0.000
1.836E 01	1.325E 00	0.000	-4.411E 01	0.000	0.000	0.000	1.654E 02	2.746E 00	1.431E-03	0.000	0.000
3.070E 01	2.730E 00	0.000	-2.085E 02	0.000	0.000	0.000	5.053E 02	5.658E 00	2.949E-03	0.000	0.000
3.508E 01	4.829E 00	0.000	-4.534E 02	0.000	0.000	0.000	6.804E 02	1.001E 01	5.216E-03	0.000	0.000
3.519E 01	4.850E 00	7.116E 00	-5.349E 02	0.000	0.000	0.000	6.853E 02	1.005E 01	5.239E-03	1.475E 01	7.686E-03
3.520E 01	4.851E 00	7.070E 00	-5.350E 02	0.000	0.000	0.000	6.856E 02	1.005E 01	5.241E-03	1.465E 01	7.637E-03
3.555E 01	4.920E 00	4.395E 00	-5.450E 02	0.000	0.000	0.000	7.210E 02	1.020E 01	5.315E-03	9.109E 00	4.748E-03
3.586E 01	4.874E 00	2.025E 00	-5.643E 02	-3.047E 02	-3.047E 02	0.000	7.528E 02	1.010E 01	5.265E-03	4.197E 00	2.187E-03
3.606E 01	4.845E 00	3.070E 00	-5.782E 02	-3.082E 02	-3.082E 02	0.000	7.730E 02	1.004E 01	5.234E-03	6.362E 00	3.316E-03
3.648E 01	5.228E 00	5.296E 00	-6.037E 02	-3.157E 02	-3.157E 02	0.000	8.166E 02	1.084E 01	5.647E-03	1.098E 01	5.720E-03
3.701E 01	5.260E 00	8.104E 00	-6.343E 02	-3.476E 02	-3.256E 02	-2.196E 01	8.725E 02	1.090E 01	5.682E-03	1.680E 01	8.755E-03
3.732E 01	5.085E 00	9.762E 00	-6.491E 02	-3.610E 02	-3.317E 02	-2.926E 01	9.062E 02	1.054E 01	5.493E-03	2.025E 01	1.055E-02
3.803E 01	4.690E 00	1.638E 01	-6.661E 02	-3.915E 02	-3.462E 02	-4.535E 01	9.835E 02	9.720E 00	5.066E-03	3.396E 01	1.770E-02
3.834E 01	6.781E 00	1.931E 01	-6.644E 02	-4.056E 02	-3.533E 02	-5.239E 01	1.018E 03	1.405E 01	7.325E-03	4.005E 01	2.086E-02
3.875E 01	9.502E 00	1.878E 01	-6.669E 02	-4.253E 02	-3.638E 02	-6.149E 01	1.064E 03	1.969E 01	1.026E-02	3.893E 01	2.029E-02
3.881E 01	9.922E 00	1.870E 01	-6.675E 02	-4.284E 02	-3.655E 02	-6.288E 01	1.072E 03	2.056E 01	1.072E-02	3.876E 01	2.020E-02
3.901E 01	1.124E 01	1.920E 01	-6.684E 02	-4.386E 02	-3.713E 02	-6.725E 01	1.094E 03	2.330E 01	1.214E-02	3.980E 01	2.074E-02
3.932E 01	1.740E 01	2.000E 01	-6.763E 02	-4.555E 02	-3.814E 02	-7.415E 01	1.130E 03	3.606E 01	1.880E-02	4.145E 01	2.160E-02
3.950E 01	2.089E 01	1.476E 01	-6.870E 02	-4.655E 02	-3.875E 02	-7.802E 01	1.151E 03	4.329E 01	2.256E-02	3.058E 01	1.594E-02
3.981E 01	2.146E 01	5.500E 00	-7.177E 02	-4.840E 02	-3.993E 02	-8.474E 01	1.187E 03	4.448E 01	2.318E-02	1.140E 01	5.941E-03
4.000E 01	2.181E 01	5.334E 00	-7.404E 02	-4.956E 02	-4.069E 02	-8.869E 01	1.209E 03	4.519E 01	2.356E-02	1.105E 01	5.761E-03
4.040E 01	2.612E 01	4.978E 00	-7.913E 02	-5.220E 02	-4.241E 02	-9.786E 01	1.256E 03	5.414E 01	2.822E-02	1.032E 01	5.377E-03
4.041E 01	2.683E 01	4.969E 00	-7.925E 02	-5.226E 02	-4.245E 02	-9.811E 01	1.257E 03	5.436E 01	2.833E-02	1.030E 01	5.367E-03
4.130E 01	3.581E 01	4.179E 00	-9.287E 02	-6.131E 02	-4.670E 02	-1.461E 02	1.362E 03	7.481E 01	3.868E-02	8.661E 00	4.514E-03
4.131E 01	3.591E 01	4.170E 00	-9.303E 02	-6.144E 02	-4.675E 02	-1.469E 02	1.363E 03	7.443E 01	3.879E-02	8.642E 00	4.505E-03
4.137E 01	3.662E 01	4.112E 00	-9.414E 02	-6.233E 02	-4.708E 02	-1.525E 02	1.371E 03	7.589E 01	3.955E-02	8.523E 00	4.442E-03
4.150E 01	3.799E 01	6.547E 00	-9.625E 02	-6.415E 02	-4.775E 02	-1.640E 02	1.386E 03	7.873E 01	4.103E-02	1.357E 01	7.072E-03
4.246E 01	3.652E 01	2.492E 01	-1.054E 03	-8.116E 02	-5.365E 02	-2.791E 02	1.501E 03	7.570E 01	3.945E-02	5.165E 01	2.692E-02
4.409E 01	5.848E 01	5.618E 01	-1.057E 03	-1.180E 03	-6.856E 02	-4.943E 02	1.699E 03	1.212E 02	6.317E-02	1.164E 02	6.069E-02
4.431E 01	6.140E 01	5.705E 01	-1.057E 03	-1.255E 03	-7.106E 02	-5.243E 02	1.725E 03	1.273E 02	6.632E-02	1.182E 02	6.163E-02
4.480E 01	6.799E 01	5.901E 01	-1.062E 03	-1.375E 03	-7.713E 02	-6.035E 02	1.785E 03	1.409E 02	7.344E-02	1.223E 02	6.374E-02
4.481E 01	6.796E 01	5.904E 01	-1.062E 03	-1.377E 03	-7.724E 02	-6.049E 02	1.786E 03	1.409E 02	7.341E-02	1.224E 02	6.378E-02
4.625E 01	6.336E 01	6.482E 01	-9.677E 02	-1.853E 03	-9.532E 02	-8.995E 02	1.963E 03	1.313E 02	6.844E-02	1.343E 02	7.001E-02
4.626E 01	6.333E 01	6.486E 01	-9.660E 02	-1.856E 03	-9.544E 02	-9.018E 02	1.964E 03	1.313E 02	6.841E-02	1.344E 02	7.006E-02
4.731E 01	5.998E 01	6.906E 01	-7.915E 02	-2.221E 03	-1.078E 03	-1.144E 03	2.094E 03	1.243E 02	6.479E-02	1.431E 02	7.460E-02
4.733E 01	6.022E 01	6.915E 01	-7.896E 02	-2.229E 03	-1.080E 03	-1.149E 03	2.097E 03	1.248E 02	6.505E-02	1.433E 02	7.470E-02
4.811E 01	6.850E 01	6.059E 01	-6.282E 02	-2.483E 03	-1.167E 03	-1.316E 03	2.194E 03	1.420E 02	7.399E-02	1.256E 02	6.545E-02
4.877E 01	5.330E 01	5.330E 01	-4.524E 02	-2.678E 03	-1.238E 03	-1.441E 03	2.277E 03	1.105E 02	5.757E-02	1.105E 02	5.757E-02
4.878E 01	5.319E 01	5.319E 01	-4.496E 02	-2.681E 03	-1.239E 03	-1.442E 03	2.278E 03	1.102E 02	5.745E-02	1.102E 02	5.745E-02
4.931E 01	4.735E 01	4.735E 01	-3.107E 02	-2.822E 03	-1.293E 03	-1.529E 03	2.345E 03	9.813E 01	5.115E-02	9.813E 01	5.115E-02
5.072E 01	3.839E 01	3.839E 01	6.208E 00	-3.165E 03	-1.430E 03	-1.734E 03	2.522E 03	7.957E 01	4.147E-02	7.957E 01	4.147E-02
5.282E 01	2.771E 01	2.771E 01	3.701E 02	-3.604E 03	-1.610E 03	-1.994E 03	2.789E 03	5.743E 01	2.994E-02	5.743E 01	2.994E-02
5.332E 01	2.557E 01	2.557E 01	4.394E 02	-3.697E 03	-1.649E 03	-2.049E 03	2.852E 03	5.299E 01	2.762E-02	5.299E 01	2.762E-02
5.407E 01	2.311E 01	2.311E 01	5.336E 02	-3.832E 03	-1.703E 03	-2.129E 03	2.948E 03	4.790E 01	2.497E-02	4.790E 01	2.497E-02
5.483E 01	2.062E 01	2.062E 01	6.184E 02	-3.962E 03	-1.755E 03	-2.207E 03	3.045E 03	4.275E 01	2.228E-02	4.275E 01	2.228E-02
5.576E 01	1.892E 01	1.892E 01	7.103E 02	-4.111E 03	-1.813E 03	-2.298E 03	3.165E 03	3.922E 01	2.044E-02	3.922E 01	2.044E-02
5.626E 01	1.801E 01	1.801E 01	9.128E 02	-4.185E 03	-1.840E 03	-2.344E 03	3.209E 03	3.732E 01	1.945E-02	3.732E 01	1.945E-02
5.631E 01	9.487E 00	1.791E 01	9.179E 02	-4.193E 03	-1.843E 03	-2.349E 03	3.216E 03	1.966E 01	1.025E-02	3.711E 01	1.934E-02
5.645E 01	9.487E 00	1.765E 01	9.295E 02	-4.212E 03	-1.850E 03	-2.362E 03	3.234E 03	1.966E 01	1.025E-02	3.658E 01	1.906E-02
5.653E 01	1.750E 01	1.750E 01	9.365E 02	-4.224E 03	-1.854E 03	-2.370E 03	3.245E 03	3.627E 01	1.891E-02	3.627E 01	1.891E-02
5.681E 01	1.699E 01	1.699E 01	9.591E 02	-4.263E 03	-1.867E 03	-2.395E 03	3.280E 03	3.521E 01	1.835E-02	3.521E 01	1.835E-02
5.704E 01	1.615E 01	1.615E 01	9.752E 02	-4.294E 03	-1.878E 03	-2.416E 03	3.309E 03	3.348E 01	1.745E-02	3.348E 01	1.745E-02
5.776E 01	1.348E 01	1.348E 01	1.015E 03	-4.392E 03	-1.909E 03	-2.483E 03	3.402E 03	2.795E 01	1.457E-02	2.795E 01	1.457E-02
5.878E 01	7.350E 00	7.350E 00	1.039E 03	-4.508E 03	-1.947E 03	-2.561E 03	3.532E 03	1.523E 01	7.940E-03	1.523E 01	7.940E-03
6.079E 01	2.075E 01	2.075E 01	1.043E 03	-4.717E 03	-2.007E 03	-2.709E 03	3.790E 03	4.300E 01	2.241E-02	4.300E 01	2.241E-02
6.221E 01	2.024E 01	2.024E 01	1.043E 03	-4.870E 03	-2.047E 03	-2.823E 03	3.972E 03	4.196E 01	2.187E-02	4.196E 01	2.187E-02

READING = 0063 BLOCK = -98 TIME = 216.754 MACH 6.0 PI = 925.749 TI = 298.15

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	LAWALL	P-IB/P80	P-IB/PI0	P-OB/P80	P-OB/PI0
6.468E 01	2.389E 01	2.389E 01	1.043E 03	-5.163E 03	-2.133E 03	-3.030E 03	4.289E 03	4.951E 01	2.580E-02	4.951E 01	2.580E-02
6.505E 01	2.606E 01	2.444E 01	1.043E 03	-5.211E 03	-2.148E 03	-3.063E 03	4.337E 03	5.402E 01	2.815E-02	5.066E 01	2.641E-02
6.509E 01	2.606E 01	2.450E 01	1.043E 03	-5.216E 03	-2.149E 03	-3.067E 03	4.342E 03	5.402E 01	2.815E-02	5.079E 01	2.647E-02
6.529E 01	2.474E 01	2.480E 01	1.043E 03	-5.269E 03	-2.157E 03	-3.082E 03	4.368E 03	5.128E 01	2.673E-02	5.140E 01	2.679E-02
6.695E 01	1.377E 01	1.199E 01	1.251E 03	-5.409E 03	-2.213E 03	-3.195E 03	4.583E 03	2.854E 01	1.487E-02	2.485E 01	1.295E-02
6.762E 01	9.894E 00	1.162E 01	1.490E 03	-5.470E 03	-2.231E 03	-3.239E 03	4.665E 03	2.051E 01	1.069E-02	2.408E 01	1.255E-02
6.839E 01	5.440E 00	8.818E 00	1.734E 03	-5.540E 03	-2.249E 03	-3.292E 03	4.760E 03	1.127E 01	5.876E-03	1.827E 01	9.525E-03
6.911E 01	4.260E 00	6.200E 00	1.891E 03	-5.607E 03	-2.262E 03	-3.345E 03	4.848E 03	8.829E 00	4.602E-03	1.285E 01	6.697E-03
6.972E 01	3.260E 00	5.129E 00	1.992E 03	-5.661E 03	-2.271E 03	-3.391E 03	4.922E 03	6.756E 00	3.521E-03	1.063E 01	5.540E-03
7.067E 01	2.351E 00	3.460E 00	2.102E 03	-5.739E 03	-2.281E 03	-3.458E 03	5.036E 03	4.873E 00	2.540E-03	7.171E 00	3.738E-03
7.110E 01	1.940E 00	3.211E 00	2.140E 03	-5.770E 03	-2.285E 03	-3.485E 03	5.088E 03	4.021E 00	2.096E-03	6.655E 00	3.469E-03
7.263E 01	1.284E 00	2.325E 00	2.242E 03	-5.851E 03	-2.296E 03	-3.555E 03	5.273E 03	2.662E 00	1.387E-03	4.819E 00	2.511E-03
7.278E 01	1.220E 00	2.033E 00	2.249E 03	-5.857E 03	-2.297E 03	-3.560E 03	5.290E 03	2.528E 00	1.318E-03	4.214E 00	2.196E-03
7.353E 01	1.305E 00	5.750E-01	2.293E 03	-5.890E 03	-2.302E 03	-3.588E 03	5.374E 03	2.704E 00	1.409E-03	1.192E 00	6.211E-04
7.354E 01	1.305E 00	5.672E-01	2.294E 03	-5.890E 03	-2.302E 03	-3.589E 03	5.375E 03	2.705E 00	1.410E-03	1.176E 00	6.127E-04
7.486E 01	1.455E 00	0.000	2.323E 03	-5.956E 03	-2.309E 03	-3.647E 03	5.427E 03	3.016E 00	1.572E-03	0.000	0.000
7.771E 01	2.705E 00	0.000	2.406E 03	-5.970E 03	-2.324E 03	-3.647E 03	5.525E 03	5.606E 00	2.922E-03	0.000	0.000
8.161E 01	1.840E 00	0.000	2.503E 03	-5.986E 03	-2.340E 03	-3.647E 03	5.630E 03	3.813E 00	1.988E-03	0.000	0.000
8.442E 01	1.425E 00	0.000	2.539E 03	-6.001E 03	-2.354E 03	-3.647E 03	5.684E 03	2.953E 00	1.539E-03	0.000	0.000
8.728E 01	2.090E 00	0.000	2.582E 03	-6.025E 03	-2.378E 03	-3.647E 03	5.707E 03	4.332E 00	2.258E-03	0.000	0.000
8.729E 01	2.091E 00	0.000	2.582E 03	-6.025E 03	-2.378E 03	-3.647E 03	5.707E 03	4.334E 00	2.259E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.364E 02	1.364E 02	2.129E-03	5.214E-02
4.041E 01	2.267E-01	1.366E 02	2.406E-03	4.244E-02
4.130E 01	2.161E 01	1.582E 02	2.542E-03	5.002E-02
4.131E 01	2.299E-01	1.585E 02	2.334E-03	5.306E-02
4.137E 01	1.447E 00	1.599E 02	2.307E-03	5.401E-02
4.150E 01	2.803E 00	1.627E 02	2.321E-03	5.725E-02
4.246E 01	2.047E 01	1.832E 02	2.394E-03	6.860E-02
4.409E 01	3.101E 01	2.142E 02	2.540E-03	9.112E-02
4.431E 01	3.874E 00	2.181E 02	2.842E-03	8.202E-02
4.480E 01	8.970E 00	2.270E 02	2.854E-03	8.271E-02
4.481E 01	1.424E-01	2.272E 02	2.870E-03	8.220E-02
4.625E 01	2.603E 01	2.532E 02	3.145E-03	7.644E-02
4.626E 01	1.700E-01	2.534E 02	2.794E-03	8.684E-02
4.731E 01	1.617E 01	2.696E 02	2.758E-03	8.666E-02
4.733E 01	3.485E-01	2.699E 02	2.866E-03	8.332E-02
4.811E 01	1.146E 01	2.814E 02	2.845E-03	8.264E-02
4.877E 01	1.008E 01	2.914E 02	3.129E-03	7.172E-02
4.878E 01	1.545E-01	2.916E 02	2.828E-03	7.982E-02
4.931E 01	7.717E 00	2.993E 02	2.777E-03	7.650E-02
5.072E 01	1.972E 01	3.190E 02	2.727E-03	6.792E-02
5.282E 01	2.769E 01	3.467E 02	2.736E-03	5.448E-02
5.332E 01	6.487E 00	3.532E 02	2.829E-03	4.998E-02
5.407E 01	9.676E 00	3.629E 02	2.805E-03	4.684E-02
5.483E 01	9.530E 00	3.724E 02	2.791E-03	4.339E-02
5.576E 01	1.122E 01	3.836E 02	2.763E-03	4.092E-02
5.626E 01	3.681E 00	3.873E 02	2.742E-03	3.715E-02
5.631E 01	5.470E-01	3.879E 02	2.911E-03	2.983E-02
5.645E 01	1.423E 00	3.893E 02	2.718E-03	3.132E-02
5.653E 01	8.384E-01	3.901E 02	3.217E-03	3.189E-02
5.681E 01	2.940E 00	3.931E 02	2.898E-03	3.408E-02
5.704E 01	2.272E 00	3.953E 02	2.877E-03	3.324E-02
5.776E 01	7.379E 00	4.027E 02	2.819E-03	3.006E-02
5.878E 01	1.078E 01	4.135E 02	2.696E-03	2.051E-02
6.079E 01	1.898E 01	4.325E 02	2.456E-03	4.427E-02
6.221E 01	1.312E 01	4.456E 02	3.010E-03	3.637E-02
6.468E 01	2.385E 01	4.694E 02	3.029E-03	3.850E-02
6.505E 01	3.223E 00	4.727E 02	3.197E-03	3.650E-02
6.509E 01	3.332E-01	4.730E 02	3.334E-03	3.694E-02
6.529E 01	1.707E 00	4.747E 02	3.333E-03	3.673E-02
6.695E 01	1.436E 01	4.891E 02	3.240E-03	2.700E-02
6.762E 01	5.276E 00	4.943E 02	3.215E-03	2.422E-02
6.839E 01	5.524E 00	4.999E 02	3.161E-03	1.855E-02
6.911E 01	4.399E 00	5.043E 02	3.118E-03	1.497E-02
6.972E 01	3.250E 00	5.075E 02	3.089E-03	1.279E-02
7.067E 01	4.298E 00	5.118E 02	3.040E-03	9.774E-03
7.110E 01	1.698E 00	5.135E 02	3.026E-03	8.934E-03
7.263E 01	5.236E 00	5.187E 02	2.979E-03	6.819E-03
7.278E 01	4.239E-01	5.192E 02	2.964E-03	6.296E-03
7.353E 01	1.707E 00	5.209E 02	2.890E-03	4.106E-03
7.354E 01	2.698E-03	5.209E 02	2.890E-03	4.093E-03
7.486E 01	1.003E 00	5.219E 02	2.939E-03	5.755E-03
7.771E 01	2.655E 00	5.245E 02	3.003E-03	9.166E-03
8.161E 01	3.007E 00	5.275E 02	2.933E-03	6.804E-03
8.442E 01	1.274E 00	5.288E 02	2.887E-03	5.565E-03
8.728E 01	5.500E-01	5.294E 02	2.923E-03	7.427E-03
8.729E 01	0.000	5.294E 02	2.923E-03	7.431E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1940.	(LBF)
MEASURED THRUST	1785.	(LBF)
CALCULATED SPECIFIC IMPULSE	2017.	(LBF*SEC/LBM)
MEASURED SPECIFIC IMPULSE	1866.	(LBF*SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.6241	
MEASURED THRUST COEFFICIENT	0.5740	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	8265.	(LBF)
NET THRUST	2028.	(LBF)
SPECIFIC IMPULSE	2109.	(LBF*SEC/LBM)
THRUST COEFFICIENT	0.6524	

MOMENTUM AND FORCES

INLET FRICTION DRAG	136.4	(LBF)
INLET MOMENTUM CHANGE	-927.7	(LBF)
COMBUSTOR FRICTION DRAG	336.3	(LBF)
COMBUSTOR STRUT DRAG	8.54	(LBF)
COMBUSTOR MOMENTUM CHANGE	1386.	(LBF)
NOZZLE FRICTION DRAG	56.70	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1482.	(LBF)
NOZZLE PRESSURE INTEGRAL	1539.	(LBF)
EXTERNAL FRICTION DRAG	54.75	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1271.	(LBF)
TOTAL EXTERNAL DRAG	-1325.	(LBF)
TOTAL STRUT DRAG	8.54	(LBF)
CAVITY FORCE	-1263.	(LBF)
CALCULATED LOAD CELL FORCE	-648.	(LBF)
MEASURED LOAD CELL FORCE	-804.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, 0.0, -160.9, -123.6,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3129	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.197	(IN)
NOZZLE SHROUD TRAILING EDGE	73.537	(IN)
NOZZLE PLUG TRAILING EDGE	87.289	(IN)
STRUT LEADING EDGE	56.453	(IN)
STRUT TRAILING EDGE	65.053	(IN)
COMBUSTOR EXIT	65.053	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9862	
ADDITIVE DRAG COEFFICIENT	0.0004	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1622	
DELTA PT2	0.1474	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.3837	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1645	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8934	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9050	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9378	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8888	
ENTHALPY AT P0 = SUPERSONIC	-4.68	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	29.46	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0288	
EQUIVALENCE RATIO	1.004	
COMBUSTOR EFFICIENCY	0.906	
TOTAL PRESSURE RATIO	0.1498	
COMBUSTOR EFFECTIVENESS	0.8234	

INJECTOR DISCHARGE COEFFICIENTS 0.8454, 0.7328, 0.7680, 0.7576

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9328	
NOZZLE COEFFICIENT = CT	0.8500	
PROCESS EFFICIENCY	0.8189	
KINETIC ENERGY EFFICIENCY	0.8473	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.298	B
1C	44.300	
2A	48.773	D
2C	46.250	E
3A	54.063	
3B	56.248	
4	44.748	

Reading 63

$t = 249.15$ sec.

3/2/5

READING # 0063 BLOCK = 134 TIME = 249.154 MACH 6.0 PI = 472.999 TT = 2988.0 PAGE 1

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T		M		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAL	PHI	ETAC
WIND TUNNEL			1	0	5														
0.000	472.999	2988		667.5(	793)	1.2943	28.831	2582											
0.000	0.247	404		-32.1(	97)	1.3987	28.831	987	5.994	5916	1.858	0.06756	17.054	0.9855	3199	6.212	187.6		
SPIKE TIP NS			2	0	5														
0.600	11.350	2988		667.5(	793)	1.2941	28.831	2582											
0.600	10.220	2917		646.1(	772)	1.2963	28.831	2554	0.405	1034	2.115	0.06756	17.054	0.9855	3128	1.085	183.4		
WIND TUNNEL			3	0	0														
0.000	472.999	2988		667.5(	793)	1.2943	28.831	2582											
0.000	0.238	399		-33.2(	96)	1.3987	28.831	982	6.033	5921	1.858	0.06572	16.589	0.9855	3113	6.047	187.7		
SPIKE TIP NS			4	0	0														
0.600	11.350	2988		667.5(	793)	1.2941	28.831	2582											
0.600	10.289	2922		647.5(	774)	1.2962	28.831	2556	0.391	1000	2.115	0.06572	16.589	0.9855	3113	1.022	187.7		
INLET THROAT			5	0	4														
40.400	189.740	2926		648.7(	775)	1.2962	28.831	2557											
40.400	9.803	1416		220.5(	350)	1.3539	28.831	1818	2.546	4629	1.915	0.59795	17.054	0.1114	2733	43.013	160.3		
INLET UPNRSK			6	0	3														
40.400	189.740	2926		648.7(	775)	1.2962	28.831	2557											
40.400	8.422	1360		206.0(	335)	1.3572	28.831	1784	2.638	4707	1.915	0.54359	17.054	0.1225	2759	39.760	161.8		
INLET DNNRSK			7	0	4														
40.400	78.229	2926		648.7(	775)	1.2962	28.831	2557											
40.400	67.258	2826		618.7(	746)	1.2993	28.831	2516	0.487	1224	1.976	0.54359	17.054	0.1225	2759	10.342	161.8		
COMBUSTOR		0	8	1	4														
40.410	189.270	2926		648.6(	775)	1.2962	28.831	2557											
40.410	9.815	1417		220.8(	350)	1.3538	28.831	1819	2.544	4627	1.915	0.59787	17.054	0.1114	2732	42.989	160.2		
COMBUSTOR		0	9	2	3														
41.310	148.227	2917		646.1(	772)	1.2965	28.831	2554											
41.310	11.441	1566		260.4(	390)	1.3455	28.831	1906	2.305	4393	1.931	0.59894	17.054	0.1112	2654	40.890	155.6		
COMBUSTOR		0	10	3	3														
41.375	145.864	2916		645.8(	772)	1.2965	28.831	2553											
41.375	11.590	1577		263.4(	393)	1.3449	28.831	1912											
									2.287	4375	1.932	0.59984	17.054	0.1110	2648	40.779	155.3		
COMBUSTOR		0	11	4	2														
41.500	141.040	2915		645.3(	772)	1.2965	28.831	2553											
41.500	11.851	1599		269.3(	399)	1.3437	28.831	1925	2.254	4338	1.934	0.59998	17.054	0.1110	2636	40.450	154.6		
COMBUSTOR		0	12	5	5														
42.460	122.309	2900		640.9(	767)	1.2970	28.831	2547											
42.460	12.805	1681		291.6(	421)	1.3396	28.831	1971	2.121	4181	1.943	0.59409	17.054	0.1121	2584	38.599	151.5		
COMBUSTOR		0	13	6	4														
44.095	112.474	2869		631.6(	758)	1.2979	28.831	2534											
44.095	12.678	1693		294.8(	424)	1.3391	28.831	1977	2.077	4106	1.945	0.57367	17.054	0.1161	2553	36.603	149.7		
COMBUSTOR		0	14	7	4														
44.310	111.439	2865		630.4(	757)	1.2981	28.831	2532											
44.310	12.708	1695		295.4(	425)	1.3390	28.831	1978	2.069	4094	1.945	0.57268	17.054	0.1163	2549	36.438	149.4		
COMBUSTOR		0	15	8	4														
44.800	108.625	2856		627.7(	754)	1.2984	28.831	2529											
44.800	12.826	1704		297.9(	427)	1.3386	28.831	1983	2.048	4063	1.946	0.57044	17.054	0.1167	2537	36.015	148.8		
COMBUSTOR		0	16	9	4														
44.810	108.567	2856		627.6(	754)	1.2984	28.831	2529											
44.810	12.830	1704		297.9(	427)	1.3385	28.831	1984	2.048	4062	1.946	0.57045	17.054	0.1167	2537	36.008	148.7		
COMBUSTOR		0	17	10	4														
46.260	97.966	2833		620.6(	748)	1.2991	28.831	2519											
46.260	12.388	1718		301.7(	431)	1.3379	28.831	1991	2.006	3995	1.951	0.53738	17.054	0.1239	2511	35.362	147.2		
COMBUSTOR		0	18	11	4														
47.310	90.081	2817		616.0(	743)	1.2996	28.831	2513											
47.310	11.570	1715		300.8(	430)	1.3381	28.831	1989	1.997	3972	1.955	0.50001	17.054	0.1332	2500	30.864	146.6		

READING = 0063 BLOCK = 134 TIME = 249.154 MACH 6.0 PT = 472.999 TT = 2988.0

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	4														
47.335	89.907	2817	615.9	(743)	1.2996	28.831	2513											
47.335	11.565	1715	300.8	(430)	1.3381	28.831	1989	1.996	3971	1.955	0.49945	17.054	0.1333	2500	30.820	146.6		
COMBUSTOR	0	20	13	5														
48.110	85.322	2806	612.7	(740)	1.2999	28.831	2508											
48.110	10.602	1693	294.8	(424)	1.3391	28.831	1977	2.017	3988	1.958	0.46591	17.054	0.1429	2502	28.876	146.7		
COMBUSTOR	0	21	14	4														
48.785	82.184	2797	610.1	(737)	1.3002	28.831	2504											
48.785	9.381	1651	283.5	(413)	1.3411	28.831	1954	2.069	4043	1.959	0.42846	17.054	0.1554	2516	26.918	147.5		
COMBUSTOR	0	22	15	4														
49.315	80.532	2791	608.2	(735)	1.3004	28.831	2502											
49.315	8.458	1613	273.1	(402)	1.3430	28.831	1933	2.119	4095	1.960	0.40071	17.054	0.1662	2531	25.503	148.4		
COMBUSTOR	0	23	16	5														
50.725	75.573	2776	603.9	(731)	1.3009	28.831	2496											
50.725	6.698	1535	252.2	(382)	1.3471	28.831	1888											
								2.221	4195	1.963	0.34152	17.054	0.1950	2558	22.265	150.0		
COMBUSTOR	0	24	17	4														
52.825	68.700	2758	598.5	(726)	1.3014	28.831	2488											
52.825	5.087	1455	230.8	(360)	1.3516	28.831	1841	2.350	4290	1.967	0.27991	17.054	0.2379	2584	18.660	151.5		
COMBUSTOR	0	25	18	4														
53.325	67.808	2754	597.3	(725)	1.3015	28.831	2486											
53.325	4.782	1434	225.3	(355)	1.3528	28.831	1829	2.359	4315	1.968	0.26847	17.054	0.2480	2591	18.002	151.9		
COMBUSTOR	0	26	19	4														
54.075	66.416	2749	595.7	(723)	1.3017	28.831	2484											
54.075	4.389	1407	218.1	(347)	1.3544	28.831	1813	2.398	4347	1.969	0.25307	17.054	0.2631	2600	17.096	152.4		
COMBUSTOR	0	27	20	5														
54.835	64.753	2744	594.1	(722)	1.3019	28.831	2482											
54.835	4.064	1385	212.3	(342)	1.3557	28.831	1799	2.429	4371	1.970	0.23932	17.054	0.2782	2607	16.257	152.8		
COMBUSTOR	0	28	21	5														
55.760	62.604	2738	592.5	(720)	1.3021	28.831	2480											
55.760	3.738	1364	206.8	(336)	1.3570	28.831	1786	2.459	4393	1.972	0.22470	17.054	0.2963	2612	15.341	153.2		
COMBUSTOR	0	29	22	4														
56.260	55.952	2735	591.7	(719)	1.3021	28.831	2478											
56.260	2.823	1303	190.9	(320)	1.3607	28.831	1748	2.561	4478	1.979	0.18102	17.054	0.3678	2640	12.599	154.6		
COMBUSTOR	0	30	23	4														
56.315	55.870	2735	591.6	(719)	1.3022	28.831	2478											
56.315	2.810	1302	190.6	(320)	1.3608	28.831	1748	2.563	4480	1.979	0.18045	17.054	0.3690	2640	12.562	154.8		
COMBUSTOR	0	31	24	4														
56.455	55.683	2735	591.4	(719)	1.3022	28.831	2478											
56.455	2.783	1299	189.9	(319)	1.3609	28.831	1746	2.567	4482	1.979	0.17915	17.054	0.3717	2641	12.479	154.8		
COMBUSTOR	0	32	25	4														
56.535	56.424	2734	591.3	(719)	1.3022	28.831	2478											
56.535	2.810	1298	189.6	(319)	1.3610	28.831	1745	2.569	4484	1.978	0.18116	17.054	0.3675	2641	12.623	154.9		
COMBUSTOR	0	33	26	4														
56.815	56.594	2733	590.9	(718)	1.3022	28.831	2477											
56.815	2.789	1293	188.4	(318)	1.3613	28.831	1742	2.576	4488	1.978	0.18056	17.054	0.3688	2642	12.593	154.9		
COMBUSTOR	0	34	27	4														
57.041	56.772	2732	590.6	(718)	1.3023	28.831	2477											
57.041	2.776	1290	187.6	(317)	1.3615	28.831	1740	2.580	4491	1.978	0.18029	17.054	0.3695	2643	12.582	155.0		
COMBUSTOR	0	35	28	4														
57.765	56.694	2728	589.5	(717)	1.3024	28.831	2475											
57.765	2.705	1280	184.9	(314)	1.3621	28.831	1734	2.595	4500	1.977	0.17742	17.054	0.3753	2645	12.407	155.1		
COMBUSTOR	0	36	29	3														
58.785	57.021	2723	588.1	(716)	1.3025	28.831	2473											
58.785	2.663	1270	182.4	(312)	1.3627	28.831	1728	2.608	4506	1.976	0.17630	17.054	0.3777	2646	12.345	155.2		
COMBUSTOR	0	37	30	5														
60.795	57.801	2716	585.9	(713)	1.3028	28.831	2470											
60.795	2.783	1276	184.0	(313)	1.3624	28.831	1732											
								2.590	4484	1.975	0.18243	17.054	0.3650	2637	12.714	154.6		

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	r/A	M	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	38	31	5														
62.215	56.302	2712	584.7	(712)	1.3029	28.831	2468											
62.215	2.885	1283	185.9	(315)	1.3619	28.831	1736	2.575	4467	1.974	0.18738	17.054	0.3553	2651	15.008	154.2		
COMBUSTOR	0	39	32	4														
64.679	53.651	2704	582.3	(710)	1.3031	28.831	2465											
64.679	2.776	1294	188.7	(318)	1.3612	28.831	1743	2.546	4438	1.978	0.17761	17.054	0.3749	2619	12.250	153.6		
COMBUSTOR	0	40	33	3														
65.055	49.674	2702	581.9	(710)	1.3032	28.831	2464											
65.055	2.586	1296	189.1	(318)	1.3611	28.831	1744	2.542	4434	1.984	0.16512	17.054	0.4032	2617	11.377	153.5		
NOZZLE AE		41	34	3														
87.291	49.674	2702	581.9	(710)	1.3032	28.831	2464											
87.291	0.234	668	31.7	(161)	1.3957	28.831	1268	4.139	5247	1.984	0.03437	17.054	1.9371	2898	2.803	169.9		
NOZZLE P0		42	35	3														
87.291	49.674	2702	581.9	(710)	1.3032	28.831	2464											
87.291	0.247	678	34.2	(164)	1.3953	28.831	1277	4.099	5235	1.984	0.03563	17.054	1.8687	2893	2.899	169.7		
FICTIVE COMBUSTR		62	55	0														
65.055	189.740	2702	581.9	(710)	1.3032	28.831	2464											
65.055	0.247	463	-17.9	(112)	1.3991	28.831	1057	5.184	5478	1.891	0.05460	17.054	1.2194	2981	4.649	174.8		
FICTIVE NOZZLE		63	56	0														
87.291	58.888	2699	581.0	(709)	1.3033	28.831	2463											
87.291	0.216	621	20.3	(150)	1.3970	28.831	1223	4.332	5297	1.972	0.03437	17.054	1.9371	2915	2.830	170.9		

READING = 0063 BLOCK = 134 TIME = 249.154 MACH 6.0 PT = 472.999 TT = 2988.0

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	6.750E-01	0.000	-2.766E-01	0.000	0.000	0.000	2.470E-02	2.730E 00	1.427E-03	0.000	0.000
1.836E 01	6.750E-01	0.000	-2.247E 01	0.000	0.000	0.000	1.634E 02	2.730E 00	1.427E-03	0.000	0.000
3.070E 01	1.405E 00	0.000	-1.068E 02	0.000	0.000	0.000	5.053E 02	5.682E 00	2.970E-03	0.000	0.000
3.508E 01	2.486E 00	0.000	-2.329E 02	0.000	0.000	0.000	6.804E 02	1.006E 01	5.256E-03	0.000	0.000
3.519E 01	2.491E 00	3.640E 00	-2.748E 02	0.000	0.000	0.000	6.854E 02	1.007E 01	5.266E-03	1.472E 01	7.695E-03
3.520E 01	2.491E 00	3.623E 00	-2.748E 02	0.000	0.000	0.000	6.857E 02	1.007E 01	5.266E-03	1.465E 01	7.689E-03
3.555E 01	2.505E 00	2.635E 00	-2.790E 02	0.000	0.000	0.000	7.209E 02	1.013E 01	5.296E-03	1.066E 01	5.571E-03
3.586E 01	2.483E 00	1.750E 00	-2.870E 02	-2.023E 02	-2.023E 02	0.000	7.529E 02	1.004E 01	5.250E-03	7.078E 00	3.700E-03
3.606E 01	2.470E 00	2.169E 00	-2.927E 02	-2.045E 02	-2.045E 02	0.000	7.729E 02	9.990E 00	5.222E-03	8.774E 00	4.587E-03
3.648E 01	2.666E 00	3.072E 00	-3.035E 02	-2.095E 02	-2.095E 02	0.000	8.164E 02	1.076E 01	5.636E-03	1.242E 01	6.495E-03
3.701E 01	2.605E 00	4.211E 00	-3.179E 02	-2.265E 02	-2.161E 02	-1.041E 01	8.726E 02	1.054E 01	5.507E-03	1.703E 01	8.903E-03
3.732E 01	2.559E 00	4.887E 00	-3.251E 02	-2.341E 02	-2.202E 02	-1.390E 01	9.063E 02	1.035E 01	5.410E-03	1.977E 01	1.033E-02
3.803E 01	2.455E 00	8.197E 00	-3.344E 02	-2.514E 02	-2.298E 02	-2.152E 01	9.834E 02	9.929E 00	5.190E-03	3.315E 01	1.733E-02
3.834E 01	3.260E 00	9.675E 00	-3.334E 02	-2.594E 02	-2.345E 02	-2.490E 01	1.018E 03	1.318E 01	6.892E-03	3.913E 01	2.045E-02
3.875E 01	4.295E 00	9.804E 00	-3.325E 02	-2.701E 02	-2.409E 02	-2.921E 01	1.064E 03	1.737E 01	9.081E-03	3.965E 01	2.073E-02
3.881E 01	4.461E 00	9.825E 00	-3.323E 02	-2.719E 02	-2.420E 02	-2.990E 01	1.072E 03	1.804E 01	9.432E-03	3.974E 01	2.077E-02
3.901E 01	4.960E 00	9.882E 00	-3.310E 02	-2.773E 02	-2.454E 02	-3.197E 01	1.094E 03	2.006E 01	1.049E-02	3.997E 01	2.089E-02
3.932E 01	8.367E 00	9.975E 00	-3.333E 02	-2.864E 02	-2.511E 02	-3.529E 01	1.130E 03	3.384E 01	1.769E-02	4.034E 01	2.109E-02
3.950E 01	1.026E 01	7.553E 00	-3.380E 02	-2.916E 02	-2.545E 02	-3.712E 01	1.150E 03	4.151E 01	2.170E-02	3.055E 01	1.597E-02
3.981E 01	1.082E 01	3.200E 00	-3.528E 02	-3.013E 02	-2.610E 02	-4.036E 01	1.187E 03	4.377E 01	2.288E-02	1.294E 01	6.765E-03
4.000E 01	1.115E 01	3.112E 00	-3.637E 02	-3.072E 02	-2.650E 02	-4.224E 01	1.209E 03	4.511E 01	2.358E-02	1.258E 01	6.579E-03
4.040E 01	1.321E 01	2.921E 00	-3.886E 02	-3.206E 02	-2.741E 02	-4.653E 01	1.256E 03	5.342E 01	2.793E-02	1.181E 01	6.175E-03
4.041E 01	1.326E 01	2.916E 00	-3.892E 02	-3.210E 02	-2.744E 02	-4.664E 01	1.257E 03	5.363E 01	2.803E-02	1.179E 01	6.165E-03
4.131E 01	1.789E 01	2.487E 00	-4.564E 02	-3.649E 02	-2.976E 02	-6.731F 01	1.363E 03	7.233E 01	3.781E-02	1.006E 01	5.258E-03
4.137E 01	1.822E 01	2.456E 00	-4.617E 02	-3.690E 02	-2.994E 02	-6.959E 01	1.371E 03	7.369E 01	3.852E-02	9.934E 00	5.193E-03
4.150E 01	1.886E 01	2.678E 00	-4.721E 02	-3.772E 02	-3.030E 02	-7.423E 01	1.386E 03	7.629E 01	3.988E-02	1.083E 01	5.662E-03
4.246E 01	7.125E 00	4.379E 00	-5.131E 02	-4.535E 02	-3.320E 02	-1.215E 02	1.501E 03	2.882E 01	1.506E-02	1.771E 01	9.257E-03
4.409E 01	9.824E 00	7.275E 00	-5.241E 02	-6.113E 02	-3.810E 02	-2.303E 02	1.699E 03	3.973E 01	2.077E-02	2.942E 01	1.538E-02
4.431E 01	1.018E 01	7.157E 00	-5.260E 02	-6.327E 02	-3.871E 02	-2.456E 02	1.725E 03	4.117E 01	2.152E-02	2.895E 01	1.513E-02
4.480E 01	1.099E 01	6.889E 00	-5.321E 02	-6.785E 02	-4.007E 02	-2.778E 02	1.785E 03	4.444E 01	2.323E-02	2.786E 01	1.456E-02
4.481E 01	1.098E 01	6.883E 00	-5.322E 02	-6.793E 02	-4.010E 02	-2.784E 02	1.786E 03	4.442E 01	2.322E-02	2.784E 01	1.455E-02
4.626E 01	1.049E 01	6.089E 00	-5.415E 02	-7.965E 02	-4.391E 02	-3.594E 02	1.964E 03	4.241E 01	2.217E-02	2.463E 01	1.287E-02
4.731E 01	1.012E 01	5.514E 00	-5.410E 02	-8.770E 02	-4.648E 02	-4.121E 02	2.094E 03	4.095E 01	2.141E-02	2.230E 01	1.166E-02
4.733E 01	1.002E 01	5.500E 00	-5.411E 02	-8.788E 02	-4.654E 02	-4.134E 02	2.097E 03	4.054E 01	2.119E-02	2.224E 01	1.163E-02
4.811E 01	6.900E 00	6.148E 00	-5.309E 02	-9.339E 02	-4.835E 02	-4.504E 02	2.194E 03	2.791E 01	1.459E-02	2.486E 01	1.300E-02
4.878E 01	6.711E 00	6.711E 00	-5.104E 02	-9.780E 02	-4.986E 02	-4.795E 02	2.278E 03	2.714E 01	1.419E-02	2.714E 01	1.419E-02
4.931E 01	7.154E 00	7.154E 00	-4.913E 02	-1.010E 03	-5.100E 02	-5.002E 02	2.345E 03	2.893E 01	1.513E-02	2.893E 01	1.513E-02
5.072E 01	3.219E 00	3.219E 00	-4.529E 02	-1.085E 03	-5.386E 02	-5.460E 02	2.522E 03	1.302E 01	6.805E-03	1.302E 01	6.805E-03
5.282E 01	3.937E 00	3.937E 00	-4.135E 02	-1.176E 03	-5.764E 02	-6.001E 02	2.789E 03	1.592E 01	8.325E-03	1.592E 01	8.325E-03
5.332E 01	3.750E 00	3.750E 00	-4.035E 02	-1.196E 03	-5.845E 02	-6.118E 02	2.852E 03	1.517E 01	7.928E-03	1.517E 01	7.928E-03
5.407E 01	3.079E 00	3.079E 00	-3.903E 02	-1.224E 03	-5.961E 02	-6.282E 02	2.948E 03	1.245E 01	6.511E-03	1.245E 01	6.511E-03
5.483E 01	2.400E 00	2.400E 00	-3.797E 02	-1.250E 03	-6.071E 02	-6.433E 02	3.046E 03	9.707E 00	5.074E-03	9.707E 00	5.074E-03
5.576E 01	2.102E 00	2.102E 00	-3.693E 02	-1.279E 03	-6.195E 02	-6.593E 02	3.164E 03	8.502E 00	4.444E-03	8.502E 00	4.444E-03
5.626E 01	1.941E 00	1.941E 00	-3.404E 02	-1.292E 03	-6.251E 02	-6.670E 02	3.209E 03	7.851E 00	4.104E-03	7.851E 00	4.104E-03
5.631E 01	1.462E 00	1.923E 00	-3.399E 02	-1.293E 03	-6.257E 02	-6.678E 02	3.216E 03	5.915E 00	3.092E-03	7.779E 00	4.067E-03
5.645E 01	1.462E 00	1.878E 00	-3.387E 02	-1.297E 03	-6.270E 02	-6.699E 02	3.234E 03	5.915E 00	3.092E-03	7.597E 00	3.971E-03
5.653E 01	1.853E 00	1.853E 00	-3.379E 02	-1.299E 03	-6.277E 02	-6.711E 02	3.245E 03	7.493E 00	3.917E-03	7.493E 00	3.917E-03
5.681E 01	1.762E 00	1.762E 00	-3.355E 02	-1.306E 03	-6.303E 02	-6.753E 02	3.280E 03	7.128E 00	3.726E-03	7.128E 00	3.726E-03
5.704E 01	1.871E 00	1.871E 00	-3.338E 02	-1.311E 03	-6.322E 02	-6.790E 02	3.309E 03	7.568E 00	3.956E-03	7.568E 00	3.956E-03
5.776E 01	2.220E 00	2.220E 00	-3.282E 02	-1.329E 03	-6.381E 02	-6.909E 02	3.402E 03	8.979E 00	4.693E-03	8.979E 00	4.693E-03
5.878E 01	2.625E 00	2.625E 00	-3.226E 02	-1.353E 03	-6.450E 02	-7.080E 02	3.552E 03	1.062E 01	5.550E-03	1.062E 01	5.550E-03
6.079E 01	1.575E 00	1.575E 00	-3.221E 02	-1.391E 03	-6.554E 02	-7.353E 02	3.790E 03	6.370E 00	3.330E-03	6.370E 00	3.330E-03
6.221E 01	1.106E 00	1.106E 00	-3.221E 02	-1.412E 03	-6.616E 02	-7.505E 02	3.972E 03	4.474E 00	2.339E-03	4.474E 00	2.339E-03
6.468E 01	2.061E 00	2.061E 00	-3.221E 02	-1.453E 03	-6.738E 02	-7.788E 02	4.289E 03	8.336E 00	4.358E-03	8.336E 00	4.358E-03
6.505E 01	2.850E 00	2.207E 00	-3.221E 02	-1.459E 03	-6.758E 02	-7.833E 02	4.337E 03	1.153E 01	6.025E-03	8.926E 00	4.666E-03
6.509E 01	2.850E 00	2.222E 00	-3.221E 02	-1.460E 03	-6.760E 02	-7.838E 02	4.342E 03	1.153E 01	6.025E-03	8.989E 00	4.699E-03

READING = 0063 BLOCK = 134 TIME = 249.154 MACH 6.0 PT = 472.999 TT = 2988.0

XABS	P=IB	P=OB	PDA	QOX	Q=IB	Q=OB	CA=ALL	P=IB/PSO	P=IB/PTO	P=OB/PSO	P=OB/PTO
6.529E 01	2.693E 00	2.300E 00	-3.221E 02	-1.463E 03	-6.771E 02	-7.862E 02	4.368E 03	1.089E 01	5.693E-03	4.302E 00	4.863E-03
6.695E 01	1.390E 00	3.400E 00	-2.939E 02	-1.488E 03	-6.844E 02	-8.038E 02	4.583E 03	5.622E 00	2.939E-03	1.375E 01	7.188E-03
6.762E 01	1.260E 00	2.437E 00	-2.511E 02	-1.497E 03	-6.866E 02	-8.102E 02	4.665E 03	5.095E 00	2.663E-03	9.858E 00	5.153E-03
6.839E 01	1.110E 00	1.852E 00	-2.067E 02	-1.507E 03	-6.888E 02	-8.179E 02	4.760E 03	4.489E 00	2.347E-03	7.491E 00	3.916E-03
6.911E 01	9.286E-01	1.305E 00	-1.738E 02	-1.516E 03	-6.904E 02	-8.259E 02	4.848E 03	3.756E 00	1.963E-03	5.278E 00	2.759E-03
6.972E 01	7.750E-01	1.229E 00	-1.511E 02	-1.525E 03	-6.917E 02	-8.330E 02	4.922E 03	3.134E 00	1.638E-03	4.970E 00	2.598E-03
7.067E 01	6.717E-01	1.110E 00	-1.218E 02	-1.538E 03	-6.933E 02	-8.443E 02	5.036E 03	2.717E 00	1.420E-03	4.489E 00	2.347E-03
7.110E 01	6.250E-01	1.042E 00	-1.099E 02	-1.543E 03	-6.939E 02	-8.491E 02	5.088E 03	2.528E 00	1.321E-03	4.214E 00	2.203E-03
7.263E 01	8.162E-01	8.000E-01	-7.107E 01	-1.559E 03	-6.959E 02	-8.626E 02	5.273E 03	3.301E 00	1.726E-03	3.236E 00	1.691E-03
7.278E 01	8.350E-01	7.050E-01	-6.757E 01	-1.560E 03	-6.960E 02	-8.637E 02	5.290E 03	3.377E 00	1.765E-03	2.851E 00	1.490E-03
7.353E 01	6.565E-01	2.300E-01	-4.817E 01	-1.567E 03	-6.968E 02	-8.702E 02	5.374E 03	2.655E 00	1.388E-03	9.302E-01	4.863E-04
7.354E 01	6.556E-01	2.275E-01	-4.770E 01	-1.567E 03	-6.968E 02	-8.702E 02	5.375E 03	2.651E 00	1.386E-03	9.199E-01	4.809E-04
7.486E 01	3.400E-01	0.000	-3.718E 01	-1.582E 03	-6.980E 02	-8.836E 02	5.427E 03	1.378E 00	7.188E-04	0.000	0.000
7.771E 01	1.750E-01	0.000	-2.689E 01	-1.546E 03	-7.000E 02	-8.458E 02	5.525E 03	7.078E-01	3.700E-04	0.000	0.000
8.161E 01	2.600E-01	0.000	-1.759E 01	-1.547E 03	-7.018E 02	-8.456E 02	5.630E 03	1.052E 00	5.497E-04	0.000	0.000
8.442E 01	2.850E-01	0.000	-1.153E 01	-1.472E 03	-7.033E 02	-7.684E 02	5.684E 03	1.153E 00	6.025E-04	0.000	0.000
8.728E 01	3.400E-01	0.000	-3.994E 00	-1.474E 03	-7.060E 02	-7.684E 02	5.707E 03	1.375E 00	7.188E-04	0.000	0.000
8.729E 01	3.401E-01	0.000	-3.992E 00	-1.474E 03	-7.060E 02	-7.684E 02	5.707E 03	1.376E 00	7.191E-04	0.000	0.000

X	UDRAG	CDRAG	CF	HC
4.040E 01	7.839E 01	7.639E 01	2.363E-03	2.955E-02
4.041E 01	1.200E-01	7.851E 01	2.365E-03	2.957E-02
4.131E 01	1.088E 01	8.939E 01	2.510E-03	3.200E-02
4.137E 01	7.944E-01	9.018E 01	2.520E-03	3.222E-02
4.150E 01	1.836E 00	9.172E 01	2.540E-03	3.256E-02
4.246E 01	1.170E 01	1.034E 02	2.617E-03	3.353E-02
4.409E 01	1.957E 01	1.230E 02	2.642E-03	3.274E-02
4.431E 01	2.524E 00	1.255E 02	2.647E-03	3.275E-02
4.480E 01	5.752E 00	1.313E 02	2.662E-03	3.283E-02
4.481E 01	1.137E-01	1.314E 02	2.663E-03	3.284E-02
4.626E 01	1.655E 01	1.479E 02	2.692E-03	3.150E-02
4.731E 01	1.127E 01	1.592E 02	2.699E-03	2.919E-02
4.733E 01	2.605E-01	1.595E 02	2.699E-03	2.916E-02
4.811E 01	7.762E 00	1.672E 02	2.688E-03	2.703E-02
4.878E 01	6.296E 00	1.735E 02	2.657E-03	2.447E-02
4.931E 01	4.603E 00	1.781E 02	2.626E-03	2.252E-02
5.072E 01	1.101E 01	1.891E 02	2.565E-03	1.858E-02
5.282E 01	1.380E 01	2.029E 02	2.499E-03	1.470E-02
5.332E 01	2.909E 00	2.058E 02	2.481E-03	1.396E-02
5.407E 01	4.152E 00	2.100E 02	2.458E-03	1.300E-02
5.483E 01	3.976E 00	2.140E 02	2.439E-03	1.216E-02
5.576E 01	4.567E 00	2.185E 02	2.422E-03	1.131E-02
5.626E 01	1.501E 00	2.200E 02	2.355E-03	8.794E-03
5.631E 01	2.087E-01	2.202E 02	2.354E-03	8.761E-03
5.645E 01	5.236E-01	2.208E 02	2.352E-03	8.687E-03
5.653E 01	3.017E-01	2.211E 02	2.345E-03	8.757E-03
5.681E 01	1.053E 00	2.221E 02	2.337E-03	8.694E-03
5.704E 01	8.473E-01	2.230E 02	2.331E-03	8.655E-03
5.776E 01	2.691E 00	2.257E 02	2.318E-03	8.457E-03
5.878E 01	3.740E 00	2.294E 02	2.305E-03	8.348E-03
6.079E 01	7.446E 00	2.368E 02	2.304E-03	8.630E-03
6.221E 01	5.397E 00	2.422E 02	2.303E-03	8.869E-03
6.468E 01	9.262E 00	2.515E 02	2.336E-03	8.545E-03
6.505E 01	1.340E 00	2.528E 02	2.366E-03	8.093E-03
6.509E 01	1.372E-01	2.530E 02	2.356E-03	7.912E-03
6.529E 01	6.777E-01	2.537E 02	2.352E-03	7.818E-03
6.695E 01	5.597E 00	2.593E 02	2.337E-03	7.555E-03
6.762E 01	1.935E 00	2.612E 02	2.287E-03	6.221E-03
6.839E 01	1.931E 00	2.631E 02	2.242E-03	5.259E-03
6.911E 01	1.526E 00	2.646E 02	2.189E-03	4.243E-03
6.972E 01	1.127E 00	2.658E 02	2.166E-03	3.904E-03
7.067E 01	1.616E 00	2.674E 02	2.142E-03	3.564E-03
7.110E 01	6.900E-01	2.681E 02	2.129E-03	3.387E-03
7.263E 01	2.362E 00	2.704E 02	2.119E-03	3.300E-03
7.278E 01	2.150E-01	2.707E 02	2.110E-03	3.180E-03
7.353E 01	8.700E-01	2.715E 02	2.014E-03	2.087E-03
7.354E 01	1.358E-03	2.715E 02	2.013E-03	2.081E-03
7.486E 01	3.973E-01	2.719E 02	1.966E-03	1.702E-03
7.771E 01	5.500E-01	2.725E 02	1.854E-03	1.023E-03
8.161E 01	5.237E-01	2.730E 02	1.899E-03	1.370E-03
8.442E 01	3.197E-01	2.733E 02	1.904E-03	1.401E-03
8.728E 01	1.456E-01	2.735E 02	1.922E-03	1.662E-03
8.729E 01	0.000	2.735E 02	1.922E-03	1.662E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=285.	(LBF)
MEASURED THRUST	=370.	(LBF)
CALCULATED SPECIFIC IMPULSE	=285.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=370.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.1794	
MEASURED THRUST COEFFICIENT	=.2325	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	*****	(LBF)
NET THRUST	29809.	(LBF)
SPECIFIC IMPULSE	2109.	(LBF=SEC/LBM)
THRUST COEFFICIENT	0.6824	

MOMENTUM AND FORCES

INLET FRICTION DRAG	78.4	(LBF)
INLET MOMENTUM CHANGE	=467.0	(LBF)
COMBUSTOR FRICTION DRAG	174.4	(LBF)
COMBUSTOR STRUT DRAG	7.92	(LBF)
COMBUSTOR MOMENTUM CHANGE	=116.	(LBF)
NOZZLE FRICTION DRAG	20.62	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	298.	(LBF)
NOZZLE PRESSURE INTEGRAL	318.	(LBF)
EXTERNAL FRICTION DRAG	27.80	(LBF)
EXTERNAL PRESSURE INTEGRAL	=640.	(LBF)
TOTAL EXTERNAL DRAG	=668.	(LBF)
TOTAL STRUT DRAG	7.92	(LBF)
CAVITY FORCE	=597.	(LBF)
CALCULATED LOAD CELL FORCE	=1550.	(LBF)
MEASURED LOAD CELL FORCE	=1635.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3146	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.199	(IN)
NOZZLE SHROUD TRAILING EDGE	73.539	(IN)
NOZZLE PLUG TRAILING EDGE	87.291	(IN)
STRUT LEADING EDGE	56.455	(IN)
STRUT TRAILING EDGE	65.055	(IN)
COMBUSTOR EXIT	65.055	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9855	
ADDITIVE DRAG COEFFICIENT	0.0005	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1631	
DELTA PT2	0.0747	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.4011	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1654	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8980	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9059	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9363	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8856	
ENTHALPY AT P0 = SUPERSONIC	=6.31	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	29.15	(BTU/LBM)

COMBUSTOR

FUEL=AIR RATIO	0.0000
EQUIVALENCE RATIO	0.000
COMBUSTOR EFFICIENCY	0.000
TOTAL PRESSURE RATIO	0.2618
COMBUSTOR EFFECTIVENESS	0.6460
INJECTOR DISCHARGE COEFFICIENTS	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	1.0060
NOZZLE COEFFICIENT = CT	0.9650
PROCESS EFFICIENCY	1.0477
KINETIC ENERGY EFFICIENCY	1.0122

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.300	
1C	44.300	
2A	48.775	
2C	46.250	
3A	54.065	
3B	56.250	
4	44.800	

Reading 63

t = 275.25 sec.

3/03/15

READING = 0063 BLOCK = 163 TINF = 275.254 MACH 6.0 PI = 471.249 TT = 2994.4

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	F	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	471.249	2994	669.4	(795)	1.2941	28.831	2585											
0.000	0.247	405	=31.7	(98)	1.3987	28.831	989	5.990	5923	1.859	0.06733	16.989	0.9852	3190	6.198	187.8		
SPIKE TIP NS		2	0	4														
0.600	11.350	2994	669.4	(795)	1.2939	28.831	2585											
0.600	10.226	2924	648.2	(774)	1.2961	28.831	2556	0.404	1032	2.116	0.06733	16.989	0.9852	3125	1.080	184.0		
WIND TUNNEL		3	0	0														
0.000	471.249	2994	669.4	(795)	1.2941	28.831	2585											
0.000	0.238	401	=32.8	(97)	1.3987	28.831	984	6.026	5928	1.859	0.06564	16.564	0.9852	3112	6.047	187.9		
SPIKE TIP NS		4	0	0														
0.600	11.350	2994	669.4	(795)	1.2939	28.831	2585											
0.600	10.289	2928	649.4	(776)	1.2960	28.831	2558	0.391	1001	2.116	0.06564	16.564	0.9852	3112	1.021	187.9		
INLET THROAT		5	0	3														
40.400	183.599	2931	650.3	(777)	1.2960	28.831	2559											
40.400	9.950	1437	226.0	(359)	1.3527	28.831	1831	2.517	4608	1.918	0.59543	16.989	0.1114	2717	42.638	159.9		
INLET UPNRSK		6	0	3														
40.400	183.599	2931	650.3	(777)	1.2960	28.831	2559											
40.400	8.545	1380	211.2	(341)	1.3560	28.831	1797	2.609	4687	1.918	0.54130	16.989	0.1225	2743	39.431	161.5		
INLET DNNRSK		7	0	4														
40.400	77.685	2931	650.3	(777)	1.2960	28.831	2559											
40.400	66.691	2830	620.0	(747)	1.2992	28.831	2518	0.489	1231	1.977	0.54130	16.989	0.1225	2743	10.358	161.5		
COMBUSTOR	0	8	1	21														
40.410	154.266	2891	653.1	(801)	1.2984	27.489	2606											
40.410	9.152	1444	224.3	(375)	1.3535	27.489	1880	2.463	4632	2.005	0.59764	17.054	0.1114	2716	43.021	159.3	0.13	0.07
COMBUSTOR	0	9	2	21														
41.298	118.108	2822	656.9	(811)	1.3023	26.333	2634											
41.298	11.513	1595	277.3	(434)	1.3470	26.333	2014	2.164	4358	2.087	0.60094	17.114	0.1112	2646	40.703	154.6	0.26	0.04
COMBUSTOR	0	10	3	21														
41.308	123.502	2780	656.8	(799)	1.3042	26.289	2618											
41.308	11.539	1550	277.7	(422)	1.3497	26.289	1989	2.190	4356	2.079	0.60111	17.114	0.1112	2645	40.688	154.6	0.26	0.01
COMBUSTOR	0	11	4	21														
41.373	122.824	2773	656.5	(796)	1.3046	26.283	2616											
41.373	11.712	1554	280.8	(423)	1.3496	26.283	1992	2.177	4336	2.079	0.60178	17.114	0.1110	2640	40.555	154.2	0.26	0.00
COMBUSTOR	0	12	5	21														
41.500	119.877	2770	656.0	(796)	1.3047	26.282	2615											
41.500	12.219	1579	288.4	(430)	1.3483	26.282	2007	2.137	4289	2.080	0.60179	17.114	0.1110	2629	40.107	153.6	0.26	0.00
COMBUSTOR	0	13	6	21														
42.460	100.987	2753	650.7	(790)	1.3052	26.282	2607											
42.460	9.354	1530	274.2	(416)	1.3508	26.281	1977	2.195	4340	2.091	0.59615	17.114	0.1121	2577	40.211	150.6	0.26	0.00
COMBUSTOR	0	14	7	21														
44.093	96.470	2721	638.9	(780)	1.3062	26.286	2593											
44.093	14.450	1709	325.7	(468)	1.3421	26.285	2083	1.901	3959	2.091	0.57541	17.114	0.1161	2536	35.405	148.2	0.26	0.00
COMBUSTOR	0	15	8	3														
44.310	92.762	2749	637.2	(788)	1.3048	26.321	2603											
44.310	15.376	1774	334.2	(487)	1.3389	26.321	2118	1.838	3893	2.097	0.57498	17.114	0.1163	2529	34.764	147.8	0.26	0.03
COMBUSTOR	0	16	9	4														
44.800	83.758	2849	632.5	(818)	1.3000	26.440	2639											
44.800	17.464	1956	352.1	(540)	1.3305	26.440	2212	1.693	3745	2.113	0.57225	17.114	0.1168	2515	33.309	146.9	0.26	0.13
COMBUSTOR	0	17	10	2														
44.808	83.621	2850	632.4	(819)	1.3000	26.442	2639											
44.808	17.495	1959	352.4	(541)	1.3304	26.442	2213	1.691	3743	2.113	0.57208	17.114	0.1168	2514	33.278	146.9	0.26	0.13
COMBUSTOR	0	18	11	7														
46.250	65.888	2730	636.3	(867)	1.3071	23.682	2737											
46.250	23.176	2122	424.5	(657)	1.3278	23.682	2432	1.358	3255	2.309	0.54478	17.285	0.1239	2484	27.560	143.7	0.61	0.09

READING = 0065 BLOCK = 163 TIME = 275.254 MACH 0.0 PT = 471.249 TT = 2994.4

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	W	A/AC	MOMTM	Q	IVAL	PHI	ETAC
COMBUSTOR	0	19	12 2														
46.260	65.818	2733	636.2(868)	1.3070	23.685	2738											
46.260	23.215	2126	424.7(658)	1.3277	23.685	2434	1.336	3253	2.309	0.54448	17.285	0.1239	2485	27.525	145.7	0.61	0.09
COMBUSTOR	0	20	13 4														
47.310	59.586	2976	623.5(950)	1.2954	23.949	2829											
47.310	27.351	2482	447.6(776)	1.3118	23.949	2600	1.141	2967	2.339	0.50665	17.285	0.1332	2527	23.362	146.2	0.61	0.20
COMBUSTOR	0	21	14 2														
47.333	59.529	2979	623.2(951)	1.2952	23.952	2830											
47.333	27.472	2488	448.3(778)	1.3116	23.952	2603	1.137	2959	2.339	0.50644	17.285	0.1333	2527	23.288	146.2	0.61	0.20
COMBUSTOR	0	22	15 4														
48.110	56.232	3137	614.4(1004)	1.2874	24.130	2885											
48.110	28.168	2679	449.1(842)	1.3028	24.131	2682	1.072	2876	2.355	0.47210	17.285	0.1430	2576	21.099	149.1	0.61	0.27
COMBUSTOR	0	23	16 8														
48.773	54.122	2744	621.4(962)	1.3074	21.464	2883											
48.773	21.230	2191	408.4(750)	1.3264	21.465	2594	1.259	3265	2.521	0.43950	17.471	0.1552	2617	22.299	149.8	0.99	0.12
COMBUSTOR	0	24	17 2														
48.783	54.086	2746	621.3(962)	1.3073	21.466	2883											
48.783	21.190	2191	407.9(751)	1.3263	21.466	2595	1.259	3268	2.521	0.43892	17.471	0.1554	2618	22.289	149.8	0.99	0.12
COMBUSTOR	0	25	18 4														
49.313	52.397	2820	616.4(990)	1.3037	21.540	2913											
49.313	19.067	2215	382.5(758)	1.3245	21.540	2602	1.315	3421	2.531	0.41050	17.471	0.1662	2669	21.823	152.8	0.99	0.14
COMBUSTOR	0	26	19 4														
50.723	46.873	3102	604.5(1095)	1.2902	21.811	3021											
50.723	16.994	2453	348.6(843)	1.3122	21.812	2709	1.321	3578	2.566	0.34986	17.471	0.1950	2791	19.454	159.8	0.99	0.23
COMBUSTOR	0	27	20 4														
52.823	43.924	3240	589.4(1146)	1.2830	21.967	3067											
52.823	11.887	2400	257.9(820)	1.3119	21.969	2670	1.526	4073	2.582	0.28675	17.471	0.2379	2936	16.149	168.0	0.99	0.28
COMBUSTOR	0	28	21 4														
53.323	41.619	3361	586.3(1191)	1.2767	22.085	3108											
53.323	12.117	2544	260.1(872)	1.3052	22.089	2734	1.478	4040	2.595	0.27503	17.471	0.2480	2964	17.269	169.6	0.99	0.31
COMBUSTOR	0	29	22 3														
54.073	40.794	3397	581.8(1205)	1.2747	22.128	3119											
54.073	10.979	2528	234.5(865)	1.3052	22.133	2722	1.531	4168	2.599	0.25925	17.471	0.2631	3003	16.795	171.9	0.99	0.32
COMBUSTOR	0	30	23 3														
54.833	40.430	3403	577.3(1207)	1.2742	22.144	3120											
54.833	9.825	2474	206.7(844)	1.3069	22.149	2694	1.599	4307	2.600	0.24516	17.471	0.2782	3039	16.409	173.9	0.99	0.33
COMBUSTOR	0	31	24 4														
55.760	39.180	3455	572.3(1226)	1.2713	22.204	3136											
55.760	9.052	2488	185.2(848)	1.3055	22.210	2696	1.632	4401	2.605	0.23016	17.471	0.2964	3077	15.741	176.1	0.99	0.35
COMBUSTOR	0	32	25 5														
56.258	30.542	3861	569.7(1381)	1.2461	22.603	3253											
56.258	8.637	2965	192.2(1024)	1.2830	22.627	2891	1.503	4346	2.652	0.18538	17.471	0.3679	3174	12.522	181.7	0.99	0.47
COMBUSTOR	0	33	26 5														
56.313	35.273	3531	569.5(1255)	1.2668	22.282	3159											
56.313	6.640	2432	129.1(826)	1.3064	22.290	2662	1.763	4694	2.619	0.18486	17.471	0.3690	3176	13.485	181.8	0.99	0.37
COMBUSTOR	0	34	27 3														
56.453	35.161	3538	568.8(1258)	1.2664	22.290	3161											
56.453	6.581	2434	126.4(826)	1.3062	22.299	2663	1.767	4705	2.620	0.18353	17.471	0.3717	3181	13.419	182.1	0.99	0.37
COMBUSTOR	0	35	28 6														
56.533	31.132	3846	568.4(1375)	1.2472	22.591	3249											
56.533	8.408	2921	180.4(1007)	1.2848	22.613	2873	1.534	4406	2.649	0.18559	17.471	0.3675	3184	12.708	182.3	0.99	0.47
COMBUSTOR	0	36	29 3														
56.813	31.558	3832	567.0(1370)	1.2481	22.580	3245											
56.813	8.175	2862	169.8(992)	1.2864	22.602	2856	1.561	4459	2.647	0.18497	17.471	0.3688	3193	12.617	182.8	0.99	0.46
COMBUSTOR	0	37	30 4														
57.039	32.371	3785	566.0(1352)	1.2513	22.536	3232											
57.039	7.795	2794	155.1(959)	1.2902	22.555	2819	1.609	4534	2.642	0.18462	17.471	0.3695	3200	13.009	183.1	0.99	0.45

READING = 0063 BLOCK = 163 TIME = 275.254 MACH 6.0 PI = 471.249 TI = 2994.4

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	M/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	51 4														
57.763	35.342	3612	562.6(1285)	1.2620	22.575	3182											
57.763	6.570	2491	110.4(846)	1.3031	22.386	2685	1.772	4757	2.623	0.18177	17.471	0.3753	3215	13.436	184.0	0.99	0.40
COMBUSTOR	0	39	32 7														
58.783	59.917	2993	558.6(1052)	1.2940	21.815	2971											
58.783	3.675	1515	2.5(499)	1.3504	21.816	2160	2.443	5275	2.529	0.18060	17.471	0.3777	3220	14.806	184.3	0.99	0.23
COMBUSTOR	0	40	33 6														
60.793	30.074	4076	551.3(1463)	1.2302	22.863	3302											
60.793	9.650	3253	190.3(1131)	1.2681	22.907	2992	1.420	4250	2.661	0.18689	17.471	0.3650	3210	12.344	183.7	0.99	0.55
COMBUSTOR	0	41	34 3														
62.213	30.513	4091	545.9(1468)	1.2290	22.891	3304											
62.213	10.150	3293	194.1(1146)	1.2661	22.936	3006	1.396	4196	2.659	0.19195	17.471	0.3553	3202	12.516	183.3	0.99	0.56
COMBUSTOR	0	42	35 4														
64.677	27.632	4221	535.7(1518)	1.2173	23.052	3329											
64.677	11.030	3554	226.5(1247)	1.2515	23.114	3093	1.267	3920	2.672	0.18195	17.471	0.3749	3188	11.085	182.5	0.99	0.61
COMBUSTOR	0	43	36 4														
65.053	25.044	4343	533.9(1565)	1.2084	23.185	3351											
65.053	11.807	3805	271.9(1344)	1.2352	23.264	3169	1.143	3621	2.685	0.16915	17.471	0.4032	3186	9.519	182.3	0.99	0.66
COMBUSTOR REGEN		44	37 21														
65.053	25.044	4516	633.9(1637)	1.1929	23.125	3403											
65.053	9.516	3836	287.6(1387)	1.2313	23.258	3178	1.310	4163	2.708	0.16915	17.471	0.4032	3243	10.943	185.6	0.99	0.66
NOZZLE AE		45	38 5														
87.289	25.044	4343	533.9(1537)	1.2054	23.185	3351											
87.289	0.698	2068	=423.0(674)	1.3076	23.300	2402	2.881	6920	2.685	0.03521	17.471	1.9371	4104	3.787	234.9	0.99	0.66
NOZZLE PO		46	39 5														
87.289	25.044	4343	533.9(1537)	1.2054	23.185	3351											
87.289	0.247	1609	=585.2(511)	1.3290	23.300	2136	3.503	7483	2.685	0.01732	17.471	3.9393	4313	2.014	246.9	0.99	0.66
NOZZLE AE REGEN		47	40 5														
87.289	25.044	4516	633.9(1637)	1.1929	23.125	3403											
87.289	0.736	2227	=364.9(731)	1.3012	23.299	2486	2.843	7070	2.708	0.03521	17.471	1.9371	4204	3.869	240.6	0.99	0.66
NOZZLE PO REGEN		48	41 5														
87.289	25.044	4516	633.9(1637)	1.1929	23.125	3403											
87.289	0.247	1717	=547.7(549)	1.3234	23.300	2202	3.492	7689	2.708	0.01667	17.471	4.0915	4434	1.992	253.8	0.99	0.66
FICTIVE COMBUSTR		60	61 0														
65.053	183.599	5194	533.9(1899)	1.1654	24.092	3534											
65.053	0.247	1436	=1143.6(437)	1.3255	24.652	1959	4.677	9162	2.532	0.02515	17.471	2.7127	5147	3.580	294.6	0.99	1.00
FICTIVE NOZZLE		69	62 0														
87.289	16.412	4278	506.4(1538)	1.2044	23.184	3324											
87.289	0.854	2350	=319.1(777)	1.2965	23.299	2550	2.520	6427	2.715	0.03521	17.471	1.9371	3914	3.517	224.0	0.99	0.66

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PIO
6.981E-01	6.900E-01	0.000	-2.766E-01	0.000	0.000	0.000	2.470E-02	2.794E 00	1.464E-03	0.000	0.000
1.636E 01	6.900E-01	0.000	-2.296E 01	0.000	0.000	0.000	1.634E 02	2.794E 00	1.464E-03	0.000	0.000
3.070E 01	1.435E 00	0.000	-1.091E 02	0.000	0.000	0.000	5.053E 02	5.810E 00	3.045E-03	0.000	0.000
3.508E 01	2.539E 00	0.000	-2.379E 02	0.000	0.000	0.000	6.804E 02	1.028E 01	5.387E-03	0.000	0.000
3.519E 01	2.550E 00	3.633E 00	-2.797E 02	0.000	0.000	0.000	6.853E 02	1.032E 01	5.410E-03	1.471E 01	7.709E-03
3.520E 01	2.550E 00	3.618E 00	-2.798E 02	0.000	0.000	0.000	6.856E 02	1.033E 01	5.412E-03	1.465E 01	7.678E-03
3.555E 01	2.585E 00	2.773E 00	-2.843E 02	0.000	0.000	0.000	7.210E 02	1.047E 01	5.485E-03	1.123E 01	5.885E-03
3.586E 01	2.551E 00	2.025E 00	-2.919E 02	-2.018E 02	-2.018E 02	0.000	7.528E 02	1.033E 01	5.414E-03	8.199E 00	4.297E-03
3.606E 01	2.530E 00	2.418E 00	-2.973E 02	-2.041E 02	-2.041E 02	0.000	7.730E 02	1.024E 01	5.369E-03	9.792E 00	5.132E-03
3.648E 01	2.707E 00	3.256E 00	-3.078E 02	-2.091E 02	-2.091E 02	0.000	8.166E 02	1.096E 01	5.744E-03	1.318E 01	6.910E-03
3.701E 01	2.810E 00	4.313E 00	-3.228E 02	-2.263E 02	-2.156E 02	-1.066E 01	8.725E 02	1.138E 01	5.963E-03	1.747E 01	9.153E-03
3.732E 01	2.716E 00	4.937E 00	-3.311E 02	-2.339E 02	-2.197E 02	-1.420E 01	9.062E 02	1.100E 01	5.764E-03	1.999E 01	1.048E-02
3.803E 01	2.505E 00	8.309E 00	-3.416E 02	-2.513E 02	-2.293E 02	-2.198E 01	9.835E 02	1.014E 01	5.316E-03	3.364E 01	1.763E-02
3.834E 01	3.490E 00	9.800E 00	-3.412E 02	-2.593E 02	-2.340E 02	-2.538E 01	1.018E 03	1.413E 01	7.406E-03	3.968E 01	2.080E-02
3.875E 01	4.772E 00	9.973E 00	-3.420E 02	-2.705E 02	-2.407E 02	-2.976E 01	1.064E 03	1.932E 01	1.013E-02	4.038E 01	2.116E-02
3.881E 01	4.969E 00	1.000E 01	-3.421E 02	-2.723E 02	-2.418E 02	-3.043E 01	1.072E 03	2.012E 01	1.055E-02	4.049E 01	2.122E-02
3.901E 01	5.590E 00	1.013E 01	-3.418E 02	-2.780E 02	-2.455E 02	-3.253E 01	1.094E 03	2.263E 01	1.186E-02	4.100E 01	2.149E-02
3.932E 01	8.821E 00	1.032E 01	-3.451E 02	-2.876E 02	-2.517E 02	-3.584E 01	1.130E 03	3.572E 01	1.872E-02	4.181E 01	2.191E-02
3.950E 01	1.065E 01	8.354E 00	-3.500E 02	-2.932E 02	-2.555E 02	-3.769E 01	1.151E 03	4.312E 01	2.260E-02	3.383E 01	1.773E-02
3.981E 01	1.104E 01	4.875E 00	-3.631E 02	-3.036E 02	-2.627E 02	-4.091E 01	1.187E 03	4.471E 01	2.343E-02	1.974E 01	1.034E-02
4.000E 01	1.127E 01	4.849E 00	-3.725E 02	-3.102E 02	-2.674E 02	-4.279E 01	1.209E 03	4.565E 01	2.393E-02	1.963E 01	1.029E-02
4.040E 01	1.346E 01	4.793E 00	-3.936E 02	-3.250E 02	-2.778E 02	-4.715E 01	1.256E 03	5.449E 01	2.856E-02	1.941E 01	1.017E-02
4.041E 01	1.351E 01	4.791E 00	-3.941E 02	-3.254E 02	-2.781E 02	-4.727E 01	1.257E 03	5.471E 01	2.867E-02	1.940E 01	1.017E-02
4.130E 01	1.836E 01	4.667E 00	-4.521E 02	-3.742E 02	-3.041E 02	-7.014E 01	1.362E 03	7.434E 01	3.896E-02	1.890E 01	9.903E-03
4.131E 01	1.841E 01	4.665E 00	-4.528E 02	-3.750E 02	-3.044E 02	-7.054E 01	1.363E 03	7.456E 01	3.907E-02	1.889E 01	9.900E-03
4.137E 01	1.877E 01	4.656E 00	-4.577E 02	-3.797E 02	-3.069E 02	-7.319E 01	1.371E 03	7.599E 01	3.983E-02	1.885E 01	9.881E-03
4.150E 01	1.946E 01	4.975E 00	-4.671E 02	-3.893E 02	-3.106E 02	-7.869E 01	1.386E 03	7.880E 01	4.130E-02	2.014E 01	1.056E-02
4.246E 01	1.132E 01	7.383E 00	-5.065E 02	-4.796E 02	-3.466E 02	-1.330E 02	1.501E 03	4.586E 01	2.403E-02	2.989E 01	1.567E-02
4.409E 01	1.742E 01	1.148E 01	-5.279E 02	-6.810E 02	-4.335E 02	-2.476E 02	1.699E 03	7.054E 01	3.697E-02	4.648E 01	2.436E-02
4.431E 01	1.823E 01	1.252E 01	-5.324E 02	-7.120E 02	-4.477E 02	-2.643E 02	1.725E 03	7.383E 01	3.869E-02	5.069E 01	2.656E-02
4.480E 01	2.006E 01	1.487E 01	-5.411E 02	-7.924E 02	-4.820E 02	-3.104E 02	1.785E 03	8.123E 01	4.257E-02	6.019E 01	3.155E-02
4.481E 01	2.009E 01	1.490E 01	-5.412E 02	-7.938E 02	-4.826E 02	-3.112E 02	1.786E 03	8.133E 01	4.262E-02	6.034E 01	3.163E-02
4.625E 01	2.454E 01	2.181E 01	-5.274E 02	-1.075E 03	-5.845E 02	-4.905E 02	1.963E 03	9.936E 01	5.207E-02	8.832E 01	4.629E-02
4.626E 01	2.457E 01	2.186E 01	-5.269E 02	-1.077E 03	-5.851E 02	-4.919E 02	1.964E 03	9.949E 01	5.214E-02	8.851E 01	4.639E-02
4.731E 01	2.781E 01	2.689E 01	-4.744E 02	-1.297E 03	-6.547E 02	-6.419E 02	2.094E 03	1.126E 02	5.902E-02	1.089E 02	5.706E-02
4.733E 01	2.794E 01	2.700E 01	-4.741E 02	-1.301E 03	-6.562E 02	-6.452E 02	2.097E 03	1.132E 02	5.930E-02	1.093E 02	5.729E-02
4.811E 01	3.245E 01	2.389E 01	-4.183E 02	-1.455E 03	-7.052E 02	-7.495E 02	2.194E 03	1.314E 02	6.886E-02	9.672E 01	5.069E-02
4.877E 01	2.123E 01	2.123E 01	-3.502E 02	-1.573E 03	-7.455E 02	-8.274E 02	2.277E 03	8.596E 01	4.505E-02	8.596E 01	4.505E-02
4.878E 01	2.119E 01	2.119E 01	-3.491E 02	-1.575E 03	-7.461E 02	-8.285E 02	2.278E 03	8.580E 01	4.497E-02	8.580E 01	4.497E-02
4.931E 01	1.907E 01	1.907E 01	-2.935E 02	-1.660E 03	-7.772E 02	-8.832E 02	2.345E 03	7.720E 01	4.046E-02	7.720E 01	4.046E-02
5.072E 01	1.699E 01	1.699E 01	-1.602E 02	-1.869E 03	-8.593E 02	-1.013E 03	2.522E 03	6.881E 01	3.606E-02	6.881E 01	3.606E-02
5.282E 01	1.189E 01	1.189E 01	-1.201E 00	-2.132E 03	-9.593E 02	-1.173E 03	2.789E 03	4.813E 01	2.523E-02	4.813E 01	2.523E-02
5.332E 01	1.212E 01	1.212E 01	3.000E 01	-2.187E 03	-9.818E 02	-1.205E 03	2.852E 03	4.906E 01	2.571E-02	4.906E 01	2.571E-02
5.407E 01	1.098E 01	1.098E 01	7.469E 01	-2.266E 03	-1.014E 03	-1.252E 03	2.948E 03	4.445E 01	2.330E-02	4.445E 01	2.330E-02
5.483E 01	9.825E 00	9.825E 00	1.150E 02	-2.343E 03	-1.045E 03	-1.298E 03	3.045E 03	3.978E 01	2.085E-02	3.978E 01	2.085E-02
5.576E 01	9.052E 00	9.052E 00	1.589E 02	-2.432E 03	-1.080E 03	-1.352E 03	3.165E 03	3.665E 01	1.921E-02	3.665E 01	1.921E-02
5.626E 01	8.637E 00	8.637E 00	2.581E 02	-2.476E 03	-1.096E 03	-1.380E 03	3.209E 03	3.497E 01	1.833E-02	3.497E 01	1.833E-02
5.631E 01	4.688E 00	8.592E 00	2.606E 02	-2.481E 03	-1.098E 03	-1.383E 03	3.216E 03	1.898E 01	9.947E-03	3.479E 01	1.823E-02
5.645E 01	4.688E 00	8.475E 00	2.661E 02	-2.493E 03	-1.102E 03	-1.390E 03	3.234E 03	1.898E 01	9.947E-03	3.432E 01	1.798E-02
5.653E 01	8.408E 00	8.408E 00	2.695E 02	-2.499E 03	-1.105E 03	-1.395E 03	3.245E 03	3.405E 01	1.784E-02	3.405E 01	1.784E-02
5.681E 01	8.175E 00	8.175E 00	2.803E 02	-2.523E 03	-1.113E 03	-1.410E 03	3.280E 03	3.310E 01	1.735E-02	3.310E 01	1.735E-02
5.704E 01	7.793E 00	7.793E 00	2.881E 02	-2.541E 03	-1.119E 03	-1.422E 03	3.309E 03	3.155E 01	1.654E-02	3.155E 01	1.654E-02
5.776E 01	6.570E 00	6.570E 00	3.076E 02	-2.600E 03	-1.139E 03	-1.462E 03	3.402E 03	2.660E 01	1.394E-02	2.660E 01	1.394E-02
5.878E 01	3.675E 00	3.675E 00	3.194E 02	-2.670E 03	-1.163E 03	-1.507E 03	3.532E 03	1.488E 01	7.798E-03	1.488E 01	7.798E-03
6.079E 01	9.650E 00	9.650E 00	3.210E 02	-2.797E 03	-1.203E 03	-1.595E 03	3.790E 03	3.907E 01	2.048E-02	3.907E 01	2.048E-02
6.221E 01	1.015E 01	1.015E 01	3.210E 02	-2.892E 03	-1.231E 03	-1.661E 03	3.972E 03	4.110E 01	2.154E-02	4.110E 01	2.154E-02

READING = 0063 BLOCK = 163 TIME = 275.254 MACH 6.0 PT = 471.249 TT = 2994.4

XABS	P=IB	P=OB	POA	QOX	Q=IB	Q=OB	CA=ALL	P=IB/PSO	P=IB/PTO	P=OB/PSO	P=OB/PTO
6.468E 01	1.103E 01	1.103E 01	3.210E 02	-3.071E 03	-1.291E 03	-1.780E 03	4.289E 03	4.466E 01	2.341E-02	4.466E 01	2.341E-02
6.505E 01	1.245E 01	1.116E 01	3.210E 02	-3.102E 03	-1.302E 03	-1.800E 03	4.337E 03	5.041E 01	2.642E-02	4.520E 01	2.369E-02
6.509E 01	1.245E 01	1.118E 01	3.210E 02	-3.105E 03	-1.303E 03	-1.802E 03	4.342E 03	5.041E 01	2.642E-02	4.526E 01	2.372E-02
6.529E 01	1.180E 01	1.125E 01	3.210E 02	-3.121E 03	-1.309E 03	-1.812E 03	4.368E 03	4.780E 01	2.505E-02	4.555E 01	2.387E-02
6.695E 01	6.450E 00	6.030E 00	4.192E 02	-3.232E 03	-1.347E 03	-1.885E 03	4.583E 03	2.612E 01	1.369E-02	2.442E 01	1.280E-02
6.762E 01	4.742E 00	5.620E 00	5.358E 02	-3.268E 03	-1.358E 03	-1.911E 03	4.665E 03	1.920E 01	1.006E-02	2.357E 01	1.235E-02
6.839E 01	2.780E 00	4.427E 00	6.567E 02	-3.308E 03	-1.368E 03	-1.940E 03	4.760E 03	1.126E 01	5.899E-03	1.795E 01	9.395E-03
6.911E 01	2.179E 00	3.125E 00	7.362E 02	-3.344E 03	-1.375E 03	-1.969E 03	4.848E 03	8.823E 00	4.624E-03	1.265E 01	6.631E-03
6.972E 01	1.670E 00	2.601E 00	7.873E 02	-3.373E 03	-1.380E 03	-1.993E 03	4.922E 03	6.762E 00	3.544E-03	1.053E 01	5.519E-03
7.067E 01	1.195E 00	1.785E 00	8.439E 02	-3.413E 03	-1.386E 03	-2.027E 03	5.036E 03	4.839E 00	2.536E-03	7.228E 00	3.788E-03
7.110E 01	9.800E-01	1.643E 00	8.633E 02	-3.429E 03	-1.388E 03	-2.041E 03	5.088E 03	3.968E 00	2.080E-03	6.655E 00	3.488E-03
7.263E 01	7.022E-01	1.140E 00	9.150E 02	-3.473E 03	-1.395E 03	-2.078E 03	5.273E 03	2.843E 00	1.490E-03	4.616E 00	2.419E-03
7.278E 01	6.750E-01	1.013E 00	9.188E 02	-3.476E 03	-1.395E 03	-2.081E 03	5.290E 03	2.733E 00	1.432E-03	4.103E 00	2.150E-03
7.353E 01	6.786E-01	3.800E-01	9.422E 02	-3.496E 03	-1.398E 03	-2.097E 03	5.374E 03	2.748E 00	1.440E-03	1.539E 00	8.064E-04
7.354E 01	6.786E-01	3.766E-01	9.429E 02	-3.496E 03	-1.398E 03	-2.097E 03	5.375E 03	2.748E 00	1.440E-03	1.525E 00	7.992E-04
7.486E 01	6.850E-01	0.000	9.573E 02	-3.554E 03	-1.403E 03	-2.131E 03	5.427E 03	2.774E 00	1.454E-03	0.000	0.000
7.771E 01	1.175E 00	0.000	9.945E 02	-3.543E 03	-1.413E 03	-2.131E 03	5.525E 03	4.758E 00	2.493E-03	0.000	0.000
8.161E 01	9.300E-01	0.000	1.040E 03	-3.554E 03	-1.424E 03	-2.131E 03	5.630E 03	3.766E 00	1.973E-03	0.000	0.000
8.442E 01	7.100E-01	0.000	1.058E 03	-3.565E 03	-1.434E 03	-2.131E 03	5.684E 03	2.875E 00	1.507E-03	0.000	0.000
8.728E 01	9.900E-01	0.000	1.078E 03	-3.583E 03	-1.452E 03	-2.131E 03	5.707E 03	4.009E 00	2.101E-03	0.000	0.000
8.729E 01	9.906E-01	0.000	1.078E 03	-3.583E 03	-1.452E 03	-2.131E 03	5.707E 03	4.011E 00	2.102E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	8.117E 01	8.117E 01	2.377E-03	2.970E-02
4.041E 01	1.288E-01	8.130E 01	2.711E-03	2.695E-02
4.130E 01	1.222E 01	9.352E 01	2.847E-03	3.154E-02
4.131E 01	1.298E-01	9.365E 01	2.618E-03	3.360E-02
4.137E 01	8.181E-01	9.446E 01	2.588E-03	3.420E-02
4.150E 01	1.589E 00	9.605E 01	2.601E-03	3.510E-02
4.246E 01	1.211E 01	1.082E 02	2.647E-03	2.854E-02
4.409E 01	1.994E 01	1.281E 02	2.691E-03	3.729E-02
4.431E 01	2.496E 00	1.306E 02	2.703E-03	3.857E-02
4.480E 01	5.548E 00	1.361E 02	2.747E-03	4.094E-02
4.481E 01	9.006E-02	1.362E 02	2.829E-03	3.996E-02
4.625E 01	1.659E 01	1.528E 02	3.328E-03	4.123E-02
4.626E 01	1.072E-01	1.529E 02	2.983E-03	4.628E-02
4.731E 01	9.901E 00	1.628E 02	2.994E-03	4.849E-02
4.733E 01	2.063E-01	1.630E 02	3.144E-03	4.606E-02
4.811E 01	6.742E 00	1.698E 02	3.132E-03	4.557E-02
4.877E 01	5.937E 00	1.757E 02	3.465E-03	3.693E-02
4.878E 01	9.080E-02	1.758E 02	3.037E-03	4.263E-02
4.931E 01	4.414E 00	1.802E 02	2.983E-03	4.042E-02
5.072E 01	1.083E 01	1.911E 02	2.929E-03	3.694E-02
5.282E 01	1.469E 01	2.057E 02	2.938E-03	2.857E-02
5.332E 01	3.364E 00	2.091E 02	3.022E-03	2.779E-02
5.407E 01	4.953E 00	2.141E 02	3.048E-03	2.560E-02
5.483E 01	4.913E 00	2.190E 02	3.030E-03	2.373E-02
5.576E 01	5.776E 00	2.248E 02	3.000E-03	2.239E-02
5.626E 01	1.893E 00	2.266E 02	2.975E-03	2.029E-02
5.631E 01	2.806E-01	2.269E 02	3.151E-03	1.641E-02
5.645E 01	7.311E-01	2.277E 02	2.965E-03	1.719E-02
5.653E 01	4.265E-01	2.281E 02	3.415E-03	1.743E-02
5.681E 01	1.492E 00	2.296E 02	3.139E-03	1.859E-02
5.704E 01	1.165E 00	2.307E 02	3.117E-03	1.815E-02
5.776E 01	3.781E 00	2.345E 02	3.056E-03	1.653E-02
5.878E 01	5.527E 00	2.400E 02	2.932E-03	1.155E-02
6.079E 01	9.824E 00	2.499E 02	2.680E-03	2.348E-02
6.221E 01	6.683E 00	2.566E 02	3.222E-03	2.024E-02
6.468E 01	1.213E 01	2.687E 02	3.281E-03	2.037E-02
6.505E 01	1.664E 00	2.703E 02	3.414E-03	1.969E-02
6.509E 01	1.692E-01	2.705E 02	3.509E-03	1.965E-02
6.529E 01	8.605E-01	2.714E 02	3.502E-03	1.948E-02
6.695E 01	7.857E 00	2.786E 02	3.368E-03	1.404E-02
6.762E 01	2.682E 00	2.813E 02	3.337E-03	1.327E-02
6.839E 01	2.846E 00	2.842E 02	3.273E-03	1.042E-02
6.911E 01	2.301E 00	2.865E 02	3.224E-03	8.472E-03
6.972E 01	1.712E 00	2.882E 02	3.190E-03	7.280E-03
7.067E 01	2.282E 00	2.905E 02	3.135E-03	5.616E-03
7.110E 01	9.045E-01	2.914E 02	3.115E-03	5.113E-03
7.263E 01	2.791E 00	2.942E 02	3.058E-03	3.920E-03
7.278E 01	2.277E-01	2.944E 02	3.044E-03	3.670E-03
7.353E 01	9.457E-01	2.953E 02	2.970E-03	2.566E-03
7.354E 01	1.546E-03	2.953E 02	2.969E-03	2.559E-03
7.486E 01	5.387E-01	2.959E 02	3.000E-03	3.118E-03
7.771E 01	1.313E 00	2.972E 02	3.063E-03	4.654E-03
8.161E 01	1.519E 00	2.987E 02	3.007E-03	3.879E-03
8.442E 01	6.738E-01	2.994E 02	2.954E-03	3.145E-03
8.728E 01	2.845E-01	2.997E 02	2.989E-03	4.025E-03
8.729E 01	0.000	2.997E 02	2.989E-03	4.027E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	722.	(LBF)
MEASURED THRUST	739.	(LBF)
CALCULATED SPECIFIC IMPULSE	1499.	(LBF*SEC/LBM)
MEASURED SPECIFIC IMPULSE	1534.	(LBF*SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.4547	
MEASURED THRUST COEFFICIENT	0.4652	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	4009.	(LBF)
NET THRUST	817.	(LBF)
SPECIFIC IMPULSE	1698.	(LBF*SEC/LBM)
THRUST COEFFICIENT	0.5148	

MOMENTUM AND FORCES

INLET FRICTION DRAG	81.2	(LBF)
INLET MOMENTUM CHANGE	-474.8	(LBF)
COMBUSTOR FRICTION DRAG	189.2	(LBF)
COMBUSTOR STRUT DRAG	7.64	(LBF)
COMBUSTOR MOMENTUM CHANGE	469.	(LBF)
NOZZLE FRICTION DRAG	29.31	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	728.	(LBF)
NOZZLE PRESSURE INTEGRAL	757.	(LBF)
EXTERNAL FRICTION DRAG	37.41	(LBF)
EXTERNAL PRESSURE INTEGRAL	-795.	(LBF)
TOTAL EXTERNAL DRAG	-832.	(LBF)
TOTAL STRUT DRAG	7.64	(LBF)
CAVITY FORCE	-652.	(LBF)
CALCULATED LOAD CELL FORCE	-763.	(LBF)
MEASURED LOAD CELL FORCE	-746.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, 0.0, -159.6, -117.5,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3129	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.197	(IN)
NOZZLE SHROUD TRAILING EDGE	73.537	(IN)
NOZZLE PLUG TRAILING EDGE	87.289	(IN)
STRUT LEADING EDGE	56.453	(IN)
STRUT TRAILING EDGE	65.053	(IN)
COMBUSTOR EXIT	65.053	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9852	
ADDITIVE DRAG COEFFICIENT	0.0005	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1625	
DELTA PT2	0.0748	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3896	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1648	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8959	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9056	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9344	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8850	
ENTHALPY AT P0 - SUPERSONIC	-4.90	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	29.79	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0283	
EQUIVALENCE RATIO	0.988	
COMBUSTOR EFFICIENCY	0.655	
TOTAL PRESSURE RATIO	0.1364	
COMBUSTOR EFFECTIVENESS	0.6568	
INJECTOR DISCHARGE COEFFICIENTS	0.8607, 0.7484, 0.7696, 0.6728	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9537	
NOZZLE COEFFICIENT - CT	0.8791	
PROCESS EFFICIENCY	0.8977	
KINETIC ENERGY EFFICIENCY	0.8969	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.298	B
1C	44.300	
2A	48.773	D
2C	46.250	E
3A	54.063	
3B	56.248	
4	44.798	

Reading 64

t = 156.11 sec.

C·3

3-3-75

READING = 0064 BLOCK = 58 TIME = 156.111 MACH 6.0 PT = 747.999 TT = 2955.8 PAGE 1

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	747.999	2956	657.5(783)	1.2951	28.852	2568											
0.000	0.386	397	-33.7(96)	1.3987	28.851	979	6.010	5881	1.823	0.10666	26.978	0.9875	5029	9.748	186.4		
SPIKE TIP NS		2	0 5														
0.600	18.112	2956	657.5(783)	1.2950	28.851	2568											
0.600	16.376	2889	637.2(764)	1.2971	28.851	2541	0.397	1008	2.080	0.10666	26.978	0.9875	4987	1.670	184.9		
WIND TUNNEL		3	0 0														
0.000	747.999	2956	657.5(783)	1.2951	28.852	2568											
0.000	0.380	396	-34.1(95)	1.3986	28.851	976	6.025	5883	1.823	0.10556	26.700	0.9875	4978	9.650	186.4		
SPIKE TIP NS		4	0 0														
0.600	18.112	2956	657.5(783)	1.2950	28.851	2568											
0.600	16.417	2890	637.7(764)	1.2970	28.851	2542	0.392	995	2.080	0.10556	26.700	0.9875	4978	1.633	186.5		
INLET THROAT		5	0 4														
40.400	284.633	2927	648.8(775)	1.2960	28.851	2557											
40.400	16.027	1449	229.2(358)	1.3518	28.851	1837	2.494	4582	1.887	0.94629	26.978	0.1113	4299	67.387	159.4		
INLET UPNRSK		6	0 3														
40.400	284.633	2927	648.8(775)	1.2960	28.851	2557											
40.400	13.759	1392	214.2(344)	1.3551	28.851	1803	2.586	4663	1.887	0.86026	26.978	0.1224	4342	62.342	160.9		
INLET DNNRSK		7	0 4														
40.400	122.955	2927	648.8(775)	1.2960	28.851	2557											
40.400	105.422	2826	618.3(745)	1.2991	28.851	2515	0.491	1239	1.945	0.86026	26.978	0.1224	4342	16.510	160.9		
COMBUSTOR	0	8	1 4														
40.410	283.945	2927	648.8(775)	1.2960	28.851	2557											
40.410	16.047	1450	229.5(359)	1.3517	28.851	1838	2.492	4580	1.887	0.94617	26.978	0.1113	4298	67.349	159.3		
COMBUSTOR	0	9	2 4														
41.312	224.708	2920	646.6(773)	1.2962	28.851	2554											
41.312	18.672	1597	268.8(398)	1.3436	28.851	1923	2.261	4348	1.903	0.94878	26.978	0.1110	4177	64.106	154.8		
COMBUSTOR	0	10	3 3														
41.377	220.912	2919	646.4(773)	1.2962	28.851	2553											
41.377	18.881	1609	271.8(401)	1.3431	28.851	1930											
							2.244	4329	1.904	0.94881	26.978	0.1110	4167	63.836	154.5		
COMBUSTOR	0	11	4 3														
41.500	214.063	2918	646.0(772)	1.2963	28.851	2553											
41.500	19.294	1630	277.5(407)	1.3420	28.851	1941	2.212	4294	1.906	0.94912	26.978	0.1110	4149	63.335	153.8		
COMBUSTOR	0	12	5 5														
42.460	186.164	2906	642.4(769)	1.2966	28.851	2548											
42.460	20.867	1715	300.6(430)	1.3379	28.851	1988	2.080	4136	1.914	0.93974	26.978	0.1121	4067	60.400	150.7		
COMBUSTOR	0	13	6 5														
44.097	171.003	2882	635.1(762)	1.2974	28.851	2538											
44.097	20.765	1734	305.7(435)	1.3371	28.851	1999	2.031	4060	1.917	0.90794	26.978	0.1160	4021	57.283	149.1		
COMBUSTOR	0	14	7 5														
44.310	169.418	2878	634.1(761)	1.2975	28.851	2537											
44.310	20.821	1737	306.6(436)	1.3369	28.851	2000	2.024	4048	1.918	0.90624	26.978	0.1162	4015	57.017	148.8		
COMBUSTOR	0	15	8 5														
44.800	165.451	2871	632.0(759)	1.2977	28.851	2534											
44.800	21.004	1746	309.2(438)	1.3365	28.851	2005	2.004	4019	1.919	0.90263	26.978	0.1167	3998	56.378	148.2		
COMBUSTOR	0	16	9 5														
44.812	165.319	2871	631.9(759)	1.2977	28.851	2534											
44.812	21.015	1747	309.3(439)	1.3365	28.851	2006	2.003	4018	1.919	0.90261	26.978	0.1167	3997	56.362	148.2		
COMBUSTOR	0	17	10 5														
46.260	149.600	2852	626.3(753)	1.2983	28.851	2526											
46.260	20.303	1763	313.8(443)	1.3358	28.851	2014	1.963	3955	1.924	0.85034	26.978	0.1239	3960	52.262	146.8		
COMBUSTOR	0	18	11 4														
47.310	137.334	2840	622.6(749)	1.2987	28.851	2521											
47.310	19.008	1763	313.9(443)	1.3358	28.851	2015	1.951	3931	1.928	0.79120	26.978	0.1331	3944	48.330	146.2		

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	PUMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	5														
47.337	137.037	2840	622.5	(749)	1.2987	28.851	2521											
47.337	18.994	1764	314.0	(443)	1.3357	28.851	2015	1.950	3929	1.928	0.79008	26.978	0.1533	3943	48.246	146.2		
COMBUSTOR	0	20	13	5														
48.110	129.768	2831	619.9	(747)	1.2990	28.851	2517											
48.110	17.458	1745	308.7	(438)	1.3366	28.851	2005	1.968	3946	1.931	0.73724	26.978	0.1429	3947	45.209	146.3		
COMBUSTOR	0	21	14	4														
48.787	124.659	2824	617.8	(745)	1.2992	28.851	2514											
48.787	15.464	1704	297.8	(427)	1.3384	28.851	1983	2.018	4001	1.933	0.67778	26.978	0.1554	3971	42.146	147.2		
COMBUSTOR	0	22	15	4														
49.317	121.892	2819	616.2	(743)	1.2994	28.851	2512											
49.317	13.955	1667	287.6	(417)	1.3402	28.851	1962	2.067	4055	1.934	0.63389	26.978	0.1662	3994	39.948	148.1		
COMBUSTOR	0	23	16	5														
50.727	113.450	2806	612.6	(740)	1.2997	28.851	2507											
50.727	11.105	1594	267.9	(397)	1.3438	28.851	1921											
								2.162	4153	1.938	0.54025	26.978	0.1950	4037	34.869	149.6		
COMBUSTOR	0	24	17	4														
52.827	102.170	2791	608.1	(735)	1.3002	28.851	2501											
52.827	8.482	1519	247.7	(377)	1.3478	28.851	1878	2.261	4246	1.943	0.44279	26.978	0.2379	4077	29.221	151.1		
COMBUSTOR	0	25	18	4														
53.327	100.707	2788	607.1	(734)	1.3003	28.851	2499											
53.327	7.979	1499	242.3	(372)	1.3489	28.851	1866	2.289	4272	1.944	0.42470	26.978	0.2480	4089	28.198	151.6		
COMBUSTOR	0	26	19	4														
54.077	98.478	2783	605.7	(733)	1.3005	28.851	2498											
54.077	7.329	1472	235.2	(365)	1.3505	28.851	1851	2.327	4306	1.945	0.40034	26.978	0.2631	4104	26.790	152.1		
COMBUSTOR	0	27	20	4														
54.837	96.153	2779	604.4	(732)	1.3006	28.851	2496											
54.837	6.776	1448	229.0	(358)	1.3518	28.851	1837	2.359	4334	1.946	0.37858	26.978	0.2782	4117	25.499	152.6		
COMBUSTOR	0	28	21	5														
55.760	93.186	2774	603.0	(730)	1.3008	28.851	2494											
55.760	6.225	1426	223.0	(352)	1.3531	28.851	1823	2.392	4361	1.948	0.35550	26.978	0.2963	4129	24.091	153.0		
COMBUSTOR	0	29	22	4														
56.262	81.587	2772	602.4	(730)	1.3008	28.851	2493											
56.262	4.751	1374	209.4	(339)	1.3562	28.851	1792	2.474	4434	1.957	0.28626	26.978	0.3679	4166	19.726	154.4		
COMBUSTOR	0	30	23	5														
56.317	81.491	2772	602.3	(729)	1.3008	28.851	2493											
56.317	4.733	1373	209.2	(338)	1.3562	28.851	1791	2.476	4435	1.957	0.28546	26.978	0.3690	4166	19.676	154.4		
COMBUSTOR	0	31	24	5														
56.457	81.198	2771	602.1	(729)	1.3009	28.851	2492											
56.457	4.688	1371	208.5	(338)	1.3564	28.851	1790	2.480	4438	1.957	0.28341	26.978	0.3717	4168	19.547	154.5		
COMBUSTOR	0	32	25	4														
56.537	82.279	2771	602.0	(729)	1.3009	28.851	2492											
56.537	4.734	1369	208.1	(337)	1.3565	28.851	1789	2.482	4440	1.956	0.28663	26.978	0.3675	4168	19.776	154.5		
COMBUSTOR	0	33	26	5														
56.817	82.455	2770	601.7	(729)	1.3009	28.851	2492											
56.817	4.700	1365	207.1	(336)	1.3567	28.851	1787	2.487	4444	1.956	0.28563	26.978	0.3688	4170	19.725	154.6		
COMBUSTOR	0	34	27	4														
57.043	82.649	2769	601.4	(729)	1.3009	28.851	2492											
57.043	4.679	1362	206.3	(336)	1.3569	28.851	1785	2.491	4446	1.956	0.28520	26.978	0.3693	4171	19.707	154.6		
COMBUSTOR	0	35	28	4														
57.767	82.317	2766	600.6	(728)	1.3010	28.851	2490											
57.767	4.568	1354	204.1	(333)	1.3574	28.851	1779	2.504	4455	1.956	0.28068	26.978	0.3753	4174	19.431	154.7		
COMBUSTOR	0	36	29	3														
58.787	82.547	2763	599.6	(727)	1.3011	28.851	2489											
58.787	4.507	1346	202.0	(331)	1.3579	28.851	1775	2.513	4460	1.955	0.27888	26.978	0.3777	4176	19.330	154.8		
COMBUSTOR	0	37	30	5														
60.797	83.750	2757	597.8	(725)	1.3013	28.851	2486											
60.797	4.711	1353	203.9	(333)	1.3575	28.851	1779											
								2.495	4439	1.953	0.28859	26.978	0.3650	4163	19.910	154.3		

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	H/A	W	A/AC	MOMTM	Q	IVAC	PRI	ETAC
COMBUSTOR	0	38	51	5														
62.217	84.610	2753	596.7	(724)	1.3014	28.851	2485											
62.217	4.882	1360	205.8	(335)	1.3570	28.851	1783	2.480	4423	1.952	0.29641	26.978	0.3553	4153	20.373	153.9		
COMBUSTOR	0	39	32	4														
64.681	78.037	2746	594.7	(722)	1.3016	28.851	2482											
64.681	4.696	1371	208.7	(338)	1.3563	28.851	1790	2.455	4395	1.957	0.28096	26.978	0.3749	4136	19.189	153.3		
COMBUSTOR	0	40	33	2														
65.057	72.273	2745	594.4	(722)	1.3017	28.851	2482											
65.057	4.374	1373	209.1	(338)	1.3563	28.851	1791	2.451	4391	1.962	0.26120	26.978	0.4032	4133	17.823	153.2		
NOZZLE AE		41	34	3														
87.293	72.273	2745	594.4	(722)	1.3017	28.851	2482											
87.293	0.392	708	41.6	(171)	1.3942	28.851	1305	4.031	5259	1.962	0.05438	26.978	1.9371	4604	4.404	170.7		
NOZZLE P0		42	35	3														
87.293	72.273	2745	594.4	(722)	1.3017	28.851	2482											
87.293	0.386	705	40.8	(170)	1.3943	28.851	1302	4.044	5263	1.962	0.05378	26.978	1.9585	4607	4.399	170.6		
FICTIVE COMBUSTR	61	54	0															
65.057	284.633	2745	594.4	(722)	1.3017	28.851	2481											
65.057	0.386	477	14.3	(115)	1.3991	28.851	1073	5.144	5519	1.868	0.08328	26.978	1.2647	4753	7.143	176.2		
FICTIVE NOZZLE	62	55	0															
87.293	113.747	2724	587.9	(715)	1.3024	28.851	2472											
87.293	0.313	579	10.2	(140)	1.3979	28.851	1181	4.554	5377	1.929	0.05437	26.978	1.9371	4664	4.544	172.9		

READING = 0064 BLOCK = 58 TIME = 156.111 MACH 6.0 PT = 747.999 TT = 2955.8

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.040E 00	0.000	-4.412E-01	0.000	0.000	0.000	2.470E-02	2.695E 00	1.390E-03	0.000	0.000
1.836E 01	1.040E 00	0.000	-3.463E 01	0.000	0.000	0.000	1.634E 02	2.695E 00	1.390E-03	0.000	0.000
3.070E 01	2.175E 00	0.000	-1.650E 02	0.000	0.000	0.000	5.053E 02	5.636E 00	2.908E-03	0.000	0.000
3.508E 01	3.881E 00	0.000	-3.612E 02	0.000	0.000	0.000	6.804E 02	1.006E 01	5.189E-03	0.000	0.000
3.519E 01	3.869E 00	5.696E 00	-4.268E 02	0.000	0.000	0.000	6.855E 02	1.003E 01	5.172E-03	1.476E 01	7.615E-03
3.520E 01	3.868E 00	5.661E 00	-4.268E 02	0.000	0.000	0.000	6.858E 02	1.002E 01	5.171E-03	1.467E 01	7.568E-03
3.555E 01	3.830E 00	3.610E 00	-4.341E 02	0.000	0.000	0.000	7.208E 02	9.925E 00	5.120E-03	9.356E 00	4.827E-03
3.587E 01	3.864E 00	1.750E 00	-4.489E 02	-1.040E 02	-1.040E 02	0.000	7.530E 02	1.001E 01	5.166E-03	4.535E 00	2.340E-03
3.606E 01	3.885E 00	2.569E 00	-4.595E 02	-1.051E 02	-1.051E 02	0.000	7.727E 02	1.007E 01	5.194E-03	6.656E 00	3.434E-03
3.648E 01	4.221E 00	4.349E 00	-4.796E 02	-1.077E 02	-1.077E 02	0.000	8.164E 02	1.094E 01	5.643E-03	1.127E 01	5.814E-03
3.701E 01	4.205E 00	6.595E 00	-5.042E 02	-1.261E 02	-1.111E 02	-1.302E 01	8.722E 02	1.090E 01	5.622E-03	1.709E 01	8.817E-03
3.733E 01	4.070E 00	7.937E 00	-5.155E 02	-1.333E 02	-1.132E 02	-2.009E 01	9.064E 02	1.055E 01	5.441E-03	2.057E 01	1.061E-02
3.803E 01	3.770E 00	1.329E 01	-5.285E 02	-1.493E 02	-1.183E 02	-3.108E 01	9.832E 02	9.769E 00	5.040E-03	3.444E 01	1.777E-02
3.835E 01	5.199E 00	1.570E 01	-5.261E 02	-1.571E 02	-1.211E 02	-3.600E 01	1.019E 03	1.347E 01	6.951E-03	4.068E 01	2.099E-02
3.875E 01	7.017E 00	1.529E 01	-5.251E 02	-1.663E 02	-1.261E 02	-4.224E 01	1.064E 03	1.818E 01	9.382E-03	3.963E 01	2.044E-02
3.882E 01	7.319E 00	1.522E 01	-5.250E 02	-1.704E 02	-1.271E 02	-4.327E 01	1.072E 03	1.897E 01	9.785E-03	3.945E 01	2.035E-02
3.901E 01	8.190E 00	1.554E 01	-5.239E 02	-1.765E 02	-1.303E 02	-4.624E 01	1.094E 03	2.122E 01	1.095E-02	4.027E 01	2.078E-02
3.933E 01	1.362E 01	1.606E 01	-5.281E 02	-1.876E 02	-1.365E 02	-5.109E 01	1.130E 03	3.529E 01	1.821E-02	4.162E 01	2.147E-02
3.950E 01	1.659E 01	1.206E 01	-5.363E 02	-1.941E 02	-1.404E 02	-5.372E 01	1.150E 03	4.298E 01	2.218E-02	3.126E 01	1.613E-02
3.962E 01	1.710E 01	4.750E 00	-5.603E 02	-2.072E 02	-1.487E 02	-5.846E 01	1.187E 03	4.431E 01	2.286E-02	1.231E 01	6.350E-03
4.000E 01	1.740E 01	4.619E 00	-5.777E 02	-2.153E 02	-1.542E 02	-6.116E 01	1.209E 03	4.508E 01	2.326E-02	1.197E 01	6.176E-03
4.040E 01	2.096E 01	4.334E 00	-6.170E 02	-2.345E 02	-1.672E 02	-6.730E 01	1.256E 03	5.327E 01	2.748E-02	1.123E 01	5.794E-03
4.041E 01	2.064E 01	4.327E 00	-6.179E 02	-2.350E 02	-1.675E 02	-6.746E 01	1.257E 03	5.348E 01	2.759E-02	1.121E 01	5.785E-03
4.131E 01	2.776E 01	3.684E 00	-7.235E 02	-2.944E 02	-2.005E 02	-9.388E 01	1.363E 03	7.194E 01	3.712E-02	9.546E 00	4.925E-03
4.138E 01	2.828E 01	3.637E 00	-7.318E 02	-2.997E 02	-2.031E 02	-9.669E 01	1.371E 03	7.327E 01	3.780E-02	9.426E 00	4.863E-03
4.150E 01	2.925E 01	3.963E 00	-7.477E 02	-3.103E 02	-2.080E 02	-1.023E 02	1.386E 03	7.580E 01	3.910E-02	1.027E 01	5.298E-03
4.246E 01	1.102E 01	6.500E 00	-8.125E 02	-4.076E 02	-2.490E 02	-1.586E 02	1.501E 03	2.857E 01	1.474E-02	1.684E 01	8.689E-03
4.410E 01	1.449E 01	1.082E 01	-8.296E 02	-6.043E 02	-3.190E 02	-2.853E 02	1.699E 03	3.754E 01	1.937E-02	2.805E 01	1.447E-02
4.431E 01	1.494E 01	1.068E 01	-8.325E 02	-6.306E 02	-3.277E 02	-3.029E 02	1.725E 03	3.871E 01	1.997E-02	2.767E 01	1.428E-02
4.480E 01	1.597E 01	1.034E 01	-8.408E 02	-6.878E 02	-3.474E 02	-3.404E 02	1.784E 03	4.140E 01	2.136E-02	2.680E 01	1.383E-02
4.481E 01	1.598E 01	1.033E 01	-8.411E 02	-6.892E 02	-3.479E 02	-3.413E 02	1.786E 03	4.140E 01	2.136E-02	2.678E 01	1.382E-02
4.626E 01	1.610E 01	9.339E 00	-8.539E 02	-8.403E 02	-4.031E 02	-4.372E 02	1.964E 03	4.172E 01	2.152E-02	2.420E 01	1.249E-02
4.731E 01	1.619E 01	8.618E 00	-8.536E 02	-9.411E 02	-4.406E 02	-5.009E 02	2.094E 03	4.195E 01	2.164E-02	2.233E 01	1.152E-02
4.734E 01	1.602E 01	8.600E 00	-8.538E 02	-9.436E 02	-4.415E 02	-5.021E 02	2.097E 03	4.151E 01	2.141E-02	2.229E 01	1.150E-02
4.811E 01	1.115E 01	9.690E 00	-8.383E 02	-1.014E 03	-4.677E 02	-5.466E 02	2.194E 03	2.889E 01	1.491E-02	2.511E 01	1.295E-02
4.879E 01	1.064E 01	1.064E 01	-8.058E 02	-1.072E 03	-4.897E 02	-5.820E 02	2.278E 03	2.758E 01	1.423E-02	2.758E 01	1.423E-02
4.932E 01	1.139E 01	1.139E 01	-7.754E 02	-1.114E 03	-5.063E 02	-6.073E 02	2.345E 03	2.952E 01	1.523E-02	2.952E 01	1.523E-02
5.073E 01	4.575E 00	4.575E 00	-7.164E 02	-1.212E 03	-5.479E 02	-6.637E 02	2.522E 03	1.186E 01	6.116E-03	1.186E 01	6.116E-03
5.283E 01	6.487E 00	6.487E 00	-6.559E 02	-1.333E 03	-6.030E 02	-7.300E 02	2.789E 03	1.681E 01	8.673E-03	1.681E 01	8.673E-03
5.333E 01	5.885E 00	5.885E 00	-6.394E 02	-1.359E 03	-6.149E 02	-7.444E 02	2.852E 03	1.525E 01	7.868E-03	1.525E 01	7.868E-03
5.408E 01	5.160E 00	5.160E 00	-6.180E 02	-1.397E 03	-6.318E 02	-7.648E 02	2.948E 03	1.337E 01	6.898E-03	1.337E 01	6.898E-03
5.484E 01	4.425E 00	4.425E 00	-5.995E 02	-1.431E 03	-6.480E 02	-7.834E 02	3.046E 03	1.147E 01	5.916E-03	1.147E 01	5.916E-03
5.576E 01	3.603E 00	3.603E 00	-5.809E 02	-1.469E 03	-6.661E 02	-8.032E 02	3.164E 03	9.337E 00	4.817E-03	9.337E 00	4.817E-03
5.626E 01	3.157E 00	3.157E 00	-5.417E 02	-1.487E 03	-6.745E 02	-8.127E 02	3.209E 03	8.180E 00	4.220E-03	8.180E 00	4.220E-03
5.632E 01	1.875E 00	3.108E 00	-5.408E 02	-1.489E 03	-6.754E 02	-8.137E 02	3.216E 03	4.859E 00	2.507E-03	8.053E 00	4.154E-03
5.646E 01	1.875E 00	2.983E 00	-5.388E 02	-1.494E 03	-6.774E 02	-8.162E 02	3.234E 03	4.859E 00	2.507E-03	7.730E 00	3.988E-03
5.654E 01	2.912E 00	2.912E 00	-5.376E 02	-1.496E 03	-6.786E 02	-8.176E 02	3.248E 03	7.545E 00	3.893E-03	7.545E 00	3.893E-03
5.682E 01	2.662E 00	2.662E 00	-5.340E 02	-1.505E 03	-6.825E 02	-8.225E 02	3.280E 03	6.899E 00	3.559E-03	6.899E 00	3.559E-03
5.704E 01	2.814E 00	2.814E 00	-5.313E 02	-1.512E 03	-6.856E 02	-8.264E 02	3.309E 03	7.292E 00	3.762E-03	7.292E 00	3.762E-03
5.777E 01	3.300E 00	3.300E 00	-5.230E 02	-1.534E 03	-6.948E 02	-8.388E 02	3.402E 03	8.551E 00	4.412E-03	8.551E 00	4.412E-03
5.879E 01	3.862E 00	3.862E 00	-5.148E 02	-1.563E 03	-7.059E 02	-8.569E 02	3.532E 03	1.001E 01	5.164E-03	1.001E 01	5.164E-03
6.080E 01	2.175E 00	2.175E 00	-5.141E 02	-1.612E 03	-7.232E 02	-8.885E 02	3.790E 03	5.636E 00	2.908E-03	5.636E 00	2.908E-03
6.222E 01	1.481E 00	1.481E 00	-5.141E 02	-1.641E 03	-7.338E 02	-9.067E 02	3.972E 03	3.838E 00	1.980E-03	3.838E 00	1.980E-03
6.468E 01	3.216E 00	3.216E 00	-5.141E 02	-1.694E 03	-7.541E 02	-9.401E 02	4.289E 03	8.334E 00	4.300E-03	8.334E 00	4.300E-03
6.506E 01	4.462E 00	3.481E 00	-5.141E 02	-1.703E 03	-7.574E 02	-9.454E 02	4.337E 03	1.156E 01	5.966E-03	9.020E 00	4.654E-03
6.510E 01	4.462E 00	3.509E 00	-5.141E 02	-1.704E 03	-7.578E 02	-9.460E 02	4.342E 03	1.156E 01	5.966E-03	9.093E 00	4.691E-03

READING = 0064 BLOCK = 58 TIME = 156.111 MACH 6.0 PT = 747.999 TT = 2955.8

XABS	P=IB	P=OB	PDA	QUX	Q=IB	Q=OB	CAWALL	P=IB/PSU	P=IB/PTO	P=OB/PSO	P=OB/PTO
6.530E 01	4.168E 00	3.650E 00	-5.141E 02	-1.700E 03	-7.595E 02	-9.488E 02	4.368E 03	1.080E 01	5.572E-03	9.456E 00	4.880E-03
6.696E 01	1.720E 00	4.300E 00	-4.742E 02	-1.742E 03	-7.717E 02	-9.703E 02	4.583E 03	4.457E 00	2.299E-03	1.114E 01	5.749E-03
6.763E 01	1.808E 00	4.470E 00	-4.123E 02	-1.754E 03	-7.754E 02	-9.782E 02	4.665E 03	4.686E 00	2.418E-03	1.158E 01	5.976E-03
6.840E 01	1.910E 00	3.250E 00	-3.368E 02	-1.767E 03	-7.791E 02	-9.878E 02	4.760E 03	4.949E 00	2.553E-03	8.423E 00	4.345E-03
6.912E 01	1.601E 00	2.110E 00	-2.805E 02	-1.780E 03	-7.821E 02	-9.975E 02	4.848E 03	4.150E 00	2.141E-03	5.468E 00	2.821E-03
6.973E 01	1.340E 00	1.942E 00	-2.429E 02	-1.790E 03	-7.842E 02	-1.006E 03	4.922E 03	3.472E 00	1.791E-03	5.032E 00	2.596E-03
7.068E 01	1.175E 00	1.680E 00	-1.949E 02	-1.807E 03	-7.872E 02	-1.020E 03	5.036E 03	3.044E 00	1.571E-03	4.353E 00	2.246E-03
7.111E 01	1.100E 00	1.601E 00	-1.755E 02	-1.815E 03	-7.883E 02	-1.026E 03	5.088E 03	2.850E 00	1.471E-03	4.149E 00	2.140E-03
7.264E 01	1.047E 00	1.320E 00	-1.159E 02	-1.835E 03	-7.919E 02	-1.043E 03	5.273E 03	2.713E 00	1.400E-03	3.421E 00	1.765E-03
7.354E 01	1.016E 00	3.100E-01	-8.136E 01	-1.845E 03	-7.936E 02	-1.052E 03	5.372E 03	2.633E 00	1.358E-03	8.033E-01	4.144E-04
7.354E 01	1.016E 00	3.055E-01	-8.072E 01	-1.845E 03	-7.936E 02	-1.052E 03	5.372E 03	2.632E 00	1.358E-03	7.917E-01	4.084E-04
7.487E 01	9.700E-01	0.000	-5.975E 01	-1.863E 03	-7.958E 02	-1.068E 03	5.424E 03	2.514E 00	1.297E-03	0.000	0.000
7.772E 01	8.000E-01	0.000	-2.436E 01	-1.867E 03	-7.991E 02	-1.068E 03	5.523E 03	2.073E 00	1.070E-03	0.000	0.000
8.162E 01	8.350E-01	0.000	1.058E 01	-1.870E 03	-8.020E 02	-1.068E 03	5.628E 03	2.164E 00	1.116E-03	0.000	0.000
8.443E 01	7.300E-01	0.000	2.797E 01	-1.872E 03	-8.043E 02	-1.068E 03	5.682E 03	1.892E 00	9.759E-04	0.000	0.000
8.729E 01	9.450E-01	0.000	4.818E 01	-1.876E 03	-8.083E 02	-1.068E 03	5.705E 03	2.449E 00	1.263E-03	0.000	0.000
8.729E 01	9.455E-01	0.000	4.818E 01	-1.876E 03	-8.083E 02	-1.068E 03	5.705E 03	2.450E 00	1.264E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.138E 02	1.138E 02	2.225E-03	4.407E-02
4.041E 01	1.771E-01	1.140E 02	2.226E-03	4.407E-02
4.131E 01	1.606E 01	1.300E 02	2.355E-03	4.759E-02
4.138E 01	1.168E 00	1.312E 02	2.365E-03	4.784E-02
4.150E 01	2.221E 00	1.334E 02	2.383E-03	4.833E-02
4.246E 01	1.717E 01	1.506E 02	2.452E-03	4.970E-02
4.410E 01	2.872E 01	1.793E 02	2.476E-03	4.860E-02
4.431E 01	3.671E 00	1.830E 02	2.482E-03	4.863E-02
4.480E 01	8.439E 00	1.914E 02	2.496E-03	4.875E-02
4.481E 01	2.040E-01	1.916E 02	2.497E-03	4.876E-02
4.626E 01	2.427E 01	2.159E 02	2.526E-03	4.653E-02
4.731E 01	1.657E 01	2.325E 02	2.535E-03	4.344E-02
4.734E 01	4.137E-01	2.329E 02	2.535E-03	4.338E-02
4.811E 01	1.139E 01	2.443E 02	2.528E-03	4.028E-02
4.879E 01	9.301E 00	2.536E 02	2.501E-03	3.651E-02
4.932E 01	6.789E 00	2.604E 02	2.474E-03	3.364E-02
5.073E 01	1.627E 01	2.766E 02	2.424E-03	2.787E-02
5.283E 01	2.045E 01	2.971E 02	2.370E-03	2.214E-02
5.333E 01	4.321E 00	3.014E 02	2.354E-03	2.104E-02
5.408E 01	6.174E 00	3.076E 02	2.333E-03	1.960E-02
5.484E 01	5.918E 00	3.135E 02	2.316E-03	1.834E-02
5.576E 01	6.790E 00	3.203E 02	2.299E-03	1.705E-02
5.626E 01	2.247E 00	3.225E 02	2.288E-03	1.334E-02
5.632E 01	3.119E-01	3.229E 02	2.287E-03	1.329E-02
5.646E 01	7.828E-01	3.236E 02	2.285E-03	1.318E-02
5.654E 01	4.511E-01	3.241E 02	2.289E-03	1.329E-02
5.682E 01	1.575E 00	3.257E 02	2.232E-03	1.320E-02
5.704E 01	1.268E 00	3.269E 02	2.228E-03	1.315E-02
5.777E 01	4.029E 00	3.310E 02	2.218E-03	1.287E-02
5.879E 01	5.605E 00	3.366E 02	2.207E-03	1.271E-02
6.080E 01	1.117E 01	3.477E 02	2.207E-03	1.315E-02
6.222E 01	8.098E 00	3.558E 02	2.206E-03	1.352E-02
6.468E 01	1.389E 01	3.697E 02	2.236E-03	1.301E-02
6.506E 01	2.008E 00	3.717E 02	2.263E-03	1.285E-02
6.510E 01	2.025E-01	3.719E 02	2.266E-03	1.154E-02
6.530E 01	9.836E-01	3.729E 02	2.262E-03	1.137E-02
6.696E 01	7.615E 00	3.805E 02	2.207E-03	9.331E-03
6.763E 01	2.689E 00	3.832E 02	2.212E-03	9.616E-03
6.840E 01	2.973E 00	3.862E 02	2.173E-03	8.266E-03
6.912E 01	2.340E 00	3.886E 02	2.111E-03	6.447E-03
6.973E 01	1.696E 00	3.902E 02	2.087E-03	5.864E-03
7.068E 01	2.403E 00	3.926E 02	2.058E-03	5.263E-03
7.111E 01	1.023E 00	3.936E 02	2.048E-03	5.043E-03
7.264E 01	3.402E 00	3.971E 02	2.023E-03	4.552E-03
7.354E 01	1.461E 00	3.985E 02	1.923E-03	2.918E-03
7.354E 01	1.919E-03	3.985E 02	1.922E-03	2.910E-03
7.487E 01	7.032E-01	3.992E 02	1.981E-03	3.843E-03
7.772E 01	1.410E 00	4.006E 02	1.939E-03	3.341E-03
8.162E 01	1.421E 00	4.020E 02	1.933E-03	3.429E-03
8.443E 01	7.121E-01	4.028E 02	1.902E-03	3.078E-03
8.729E 01	3.081E-01	4.031E 02	1.936E-03	3.733E-03
8.729E 01	0.000	4.031E 02	1.936E-03	3.734E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=366.	(LBF)
MEASURED THRUST	=553.	(LBF)
CALCULATED SPECIFIC IMPULSE	=367.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=554.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.1465	
MEASURED THRUST COEFFICIENT	=.2213	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	0.	(LBF)
NET THRUST	0.	(LBF)
SPECIFIC IMPULSE	0.	(LBF=SEC/LBM)
THRUST COEFFICIENT	0.0000	

MOMENTUM AND FORCES

INLET FRICTION DRAG	113.8	(LBF)
INLET MOMENTUM CHANGE	=730.8	(LBF)
COMBUSTOR FRICTION DRAG	287.9	(LBF)
COMBUSTOR STRUT DRAG	10.87	(LBF)
COMBUSTOR MOMENTUM CHANGE	=166.	(LBF)
NOZZLE FRICTION DRAG	31.34	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	531.	(LBF)
NOZZLE PRESSURE INTEGRAL	562.	(LBF)
EXTERNAL FRICTION DRAG	43.21	(LBF)
EXTERNAL PRESSURE INTEGRAL	=1025.	(LBF)
TOTAL EXTERNAL DRAG	=1069.	(LBF)
TOTAL STRUT DRAG	10.87	(LBF)
CAVITY FORCE	=1081.	(LBF)
CALCULATED LOAD CELL FORCE	=2515.	(LBF)
MEASURED LOAD CELL FORCE	=2702.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3166	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.201	(IN)
NOZZLE SHROUD TRAILING EDGE	73.541	(IN)
NOZZLE PLUG TRAILING EDGE	87.293	(IN)
STRUT LEADING EDGE	56.457	(IN)
STRUT TRAILING EDGE	65.057	(IN)
COMBUSTOR EXIT	65.057	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9875	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1620	
DELTA PT2	0.1193	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.3805	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1644	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8900	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9039	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9456	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8968	
ENTHALPY AT P0 = SUPERSONIC	=4.77	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	28.98	(BTU/LBM)

COMBUSTOR

FUEL=AIR RATIO	0.0000
EQUIVALENCE RATIO	0.000
COMBUSTOR EFFICIENCY	0.000
TOTAL PRESSURE RATIO	0.2539
COMBUSTOR EFFECTIVENESS	0.6780
INJECTOR DISCHARGE COEFFICIENTS	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	1.0130
NOZZLE COEFFICIENT = CT	0.9709
PROCESS EFFICIENCY	1.1171
KINETIC ENERGY EFFICIENCY	1.0256

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.302	
1C	44.300	
2A	48.777	
2C	46.250	
3A	54.067	
3B	56.252	
4	44.802	

Reading 64

$t = 167.81$ sec.

11/16/75

READING = 0064 BLOCK = 71 TIME = 167.811 MACH 6.0 PT = 748.249 TT = 3063.1

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	M	GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	W	A/AC	MOMTM	Q	INAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	748.249	3063	690.1(815)	1.2918	28.852	2611											
0.000	0.404	421	*28.0(101)	1.3989	28.851	1007	5.952	5994	1.834	0.10734	26.920	0.9791	5117	9.999	190.1		
SPIKE TIP NS		2	0 3														
0.600	18.162	3063	690.1(815)	1.2916	28.851	2611											
0.600	16.333	2990	667.9(794)	1.2939	28.851	2582	0.408	1053	2.090	0.10734	26.920	0.9791	4977	1.756	184.9		
WIND TUNNEL		3	0 0														
0.000	748.249	3063	690.1(815)	1.2918	28.852	2611											
0.000	0.384	415	*29.4(100)	1.3989	28.851	1000	6.000	6000	1.834	0.10373	26.014	0.9791	4948	9.672	190.2		
SPIKE TIP NS		4	0 0														
0.600	18.162	3063	690.1(815)	1.2916	28.851	2611											
0.600	16.471	2996	669.6(795)	1.2937	28.851	2584	0.391	1011	2.090	0.10373	26.014	0.9791	4948	1.629	190.2		
INLET THROAT		5	0 4														
40.400	301.775	3024	678.2(804)	1.2930	28.851	2596											
40.400	15.917	1479	237.0(366)	1.3501	28.851	1855	2.533	4698	1.893	0.94425	26.920	0.1113	4385	68.945	162.9		
INLET UPNRSK		6	0 3														
40.400	301.775	3024	678.2(804)	1.2930	28.851	2596											
40.400	13.678	1421	221.9(351)	1.3534	28.851	1821	2.624	4778	1.893	0.85841	26.920	0.1224	4427	63.743	164.4		
INLET DNNRSK		7	0 4														
40.400	125.577	3024	678.2(804)	1.2930	28.851	2596											
40.400	107.967	2922	647.2(773)	1.2961	28.851	2555	0.487	1244	1.953	0.85841	26.920	0.1224	4427	16.599	164.4		
COMBUSTOR	0	8	1 4														
40.410	301.058	3024	678.1(804)	1.2930	28.851	2596											
40.410	15.936	1480	237.4(367)	1.3500	28.851	1856	2.531	4696	1.893	0.94413	26.920	0.1113	4384	68.907	162.8		
COMBUSTOR	0	9	2 21														
41.302	179.722	2957	686.2(850)	1.2972	26.508	2682											
41.302	15.988	1643	278.6(446)	1.3440	26.508	2035	2.220	4516	2.062	0.95256	27.107	0.1111	4260	66.859	157.2	0.24	0.07
COMBUSTOR	0	10	3 21														
41.312	194.414	2585	686.2(828)	1.3005	26.432	2656											
41.312	16.024	1565	279.0(424)	1.3486	26.432	1992	2.266	4514	2.049	0.95333	27.107	0.1110	4259	66.676	157.1	0.24	0.01
COMBUSTOR	0	11	4 21														
41.377	194.018	2873	685.9(829)	1.3011	26.421	2652											
41.377	16.254	1564	282.2(424)	1.3487	26.421	1992	2.256	4494	2.048	0.95336	27.107	0.1110	4249	66.590	156.7	0.24	0.00
COMBUSTOR	0	12	5 21														
41.500	191.239	2870	685.3(824)	1.3012	26.419	2651											
41.500	17.876	1607	295.1(436)	1.3466	26.419	2018	2.190	4418	2.049	0.95367	27.107	0.1110	4231	65.485	156.1	0.24	0.00
COMBUSTOR	0	13	6 4														
42.460	149.665	3027	679.7(871)	1.2937	26.605	2705											
42.460	28.339	2041	367.9(563)	1.3267	26.606	2249	1.756	3949	2.081	0.94425	27.107	0.1121	4141	57.955	152.8	0.24	0.15
COMBUSTOR	0	14	7 5														
44.097	110.933	3637	667.3(1058)	1.2634	27.334	2891											
44.097	54.722	3127	493.8(892)	1.2812	27.340	2699	1.092	2946	2.139	0.91229	27.107	0.1160	4108	41.771	151.6	0.24	0.75
COMBUSTOR	0	15	8 2														
44.310	110.322	3639	665.5(1058)	1.2632	27.342	2891											
44.310	56.446	3154	500.3(901)	1.2802	27.349	2709	1.061	2875	2.139	0.91058	27.107	0.1162	4103	40.685	151.3	0.24	0.75
COMBUSTOR	0	16	9 3														
44.800	109.174	3616	661.2(1051)	1.2642	27.330	2884											
44.800	60.408	3187	515.0(912)	1.2792	27.336	2723	0.993	2705	2.138	0.90695	27.107	0.1167	4084	38.126	150.7	0.24	0.74
COMBUSTOR	0	17	10 2														
44.812	109.141	3613	661.1(1050)	1.2643	27.328	2883											
44.812	60.387	3185	515.0(911)	1.2793	27.333	2722	0.993	2704	2.138	0.90694	27.107	0.1167	4083	38.113	150.6	0.24	0.74
COMBUSTOR	0	18	11 6														
46.250	102.649	3094	667.2(1001)	1.2916	25.732	2894											
46.250	57.831	2712	527.8(864)	1.3042	25.732	2742	0.970	2640	2.325	0.86459	27.416	0.1238	4064	35.477	149.0	0.63	0.19

	P	T	H	GAMA	WGAS	SONV	MACH	VEL	S	F/A	F	A/AC	WCPTM	G	IVAL	PHI	ETAC
COMBUSTOR	0	19	12 2														
46.260	102.620	3096	667.1(1001)	1.2915	23.753	2894											
46.260	57.814	2714	527.7(865)	1.3041	23.734	2723	0.979	2641	2.326	0.86413	27.416	0.1239	4065	35.465	149.0	0.63	0.19
COMBUSTOR	0	20	13 4														
47.310	98.708	3322	657.0(1079)	1.2804	23.982	2970											
47.310	55.948	2927	510.2(936)	1.2937	23.984	2802	0.967	2711	2.345	0.80404	27.416	0.1331	4217	33.871	153.8	0.63	0.29
COMBUSTOR	0	21	14 2														
47.337	98.649	3327	656.6(1081)	1.2801	23.988	2971											
47.337	55.999	2933	510.1(938)	1.2934	23.990	2804	0.966	2709	2.346	0.80290	27.416	0.1333	4221	33.863	153.9	0.63	0.29
COMBUSTOR	0	22	15 4														
48.110	94.889	3558	649.6(1160)	1.2683	24.241	3042											
48.110	52.447	3131	487.4(1005)	1.2833	24.246	2870	0.993	2850	2.363	0.74920	27.416	0.1429	4348	33.187	158.6	0.63	0.39
COMBUSTOR	0	23	16 6														
48.777	89.689	3242	660.1(1163)	1.2857	21.569	3100											
48.777	43.508	2751	460.7(968)	1.3021	21.571	2873	1.099	3158	2.549	0.69732	27.719	0.1552	4450	34.226	160.6	1.01	0.23
COMBUSTOR	0	24	17 2														
48.787	89.632	3245	660.0(1164)	1.2856	21.572	3101											
48.787	43.397	2752	460.0(968)	1.3021	21.573	2874	1.101	3163	2.549	0.69641	27.719	0.1554	4453	34.234	160.6	1.01	0.23
COMBUSTOR	0	25	18 4														
49.317	87.030	3357	656.1(1207)	1.2800	21.681	3139											
49.317	37.567	2780	420.4(977)	1.2996	21.683	2878	1.193	3434	2.560	0.65131	27.719	0.1662	4558	34.763	164.4	1.01	0.26
COMBUSTOR	0	26	19 4														
50.727	79.437	3690	646.6(1334)	1.2625	22.008	3244											
50.727	31.481	3023	366.8(1066)	1.2865	22.017	2964	1.263	3742	2.591	0.55509	27.719	0.1950	4796	32.279	173.0	1.01	0.36
COMBUSTOR	0	27	20 4														
52.827	74.396	3883	634.5(1409)	1.2510	22.221	3297											
52.827	21.900	3000	259.6(1052)	1.2841	22.239	2935	1.476	4331	2.607	0.45496	27.719	0.2379	5066	30.623	182.8	1.01	0.42
COMBUSTOR	0	28	21 3														
53.327	73.620	3902	631.9(1416)	1.2498	22.246	3301											
53.327	20.275	2974	237.5(1041)	1.2847	22.265	2921	1.521	4442	2.609	0.43637	27.719	0.2480	5115	30.124	184.5	1.01	0.43
COMBUSTOR	0	29	22 4														
54.077	72.246	3938	628.1(1430)	1.2474	22.290	3310											
54.077	18.400	2955	209.8(1032)	1.2847	22.312	2908	1.573	4575	2.612	0.41134	27.719	0.2631	5181	29.245	186.9	1.01	0.44
COMBUSTOR	0	30	23 5														
54.837	71.738	3941	624.4(1434)	1.2471	22.301	3310											
54.837	16.500	2891	179.5(1007)	1.2868	22.323	2879	1.639	4718	2.613	0.38898	27.719	0.2782	5241	28.523	189.1	1.01	0.44
COMBUSTOR	0	31	24 4														
55.760	69.542	3998	620.2(1453)	1.2453	22.367	3324											
55.760	15.241	2911	156.9(1014)	1.2851	22.394	2882	1.671	4815	2.618	0.36527	27.719	0.2963	5305	27.332	191.4	1.01	0.46
COMBUSTOR	0	32	25 5														
56.262	54.208	4465	618.1(1635)	1.2081	22.849	3026											
56.262	14.557	3502	164.2(1238)	1.2542	22.947	3085	1.545	4766	2.662	0.29413	27.719	0.3679	5478	21.783	197.6	1.01	0.62
COMBUSTOR	0	33	26 5														
56.317	62.060	4117	617.9(1499)	1.2349	22.491	3352											
56.317	11.460	2908	97.6(1010)	1.2833	22.531	2870	1.779	5105	2.634	0.29330	27.719	0.3690	5481	23.270	197.7	1.01	0.50
COMBUSTOR	0	34	27 3														
56.457	61.851	4125	617.3(1502)	1.2343	22.501	3354											
56.457	11.364	2912	94.2(1011)	1.2831	22.541	2871	1.782	5116	2.635	0.29119	27.719	0.3717	5489	23.152	198.0	1.01	0.50
COMBUSTOR	0	35	28 8														
56.537	55.310	4446	617.0(1628)	1.2098	22.832	3422											
56.537	14.182	3449	151.1(1217)	1.2569	22.925	3066	1.575	4828	2.659	0.29451	27.719	0.3675	5495	22.696	198.2	1.01	0.61
COMBUSTOR	0	36	29 3														
56.817	56.095	4430	615.9(1622)	1.2112	22.818	3419											
56.817	13.800	3404	139.4(1199)	1.2591	22.909	3050	1.601	4883	2.687	0.29348	27.719	0.3688	5510	22.271	198.8	1.01	0.61
COMBUSTOR	0	37	30 4														
57.043	57.859	4366	615.0(1598)	1.2165	22.753	3407											
57.043	13.079	3279	120.7(1151)	1.2658	22.836	3046	1.654	4973	2.651	0.29303	27.719	0.3693	5522	22.647	199.2	1.01	0.58

	P	T	H	GAMMA	ACLST	SONV	MACH	VEL	S	E/A	V	A/AC	MOMIT	I	IVAL	PHI	ETAC
COMBUSTOR	0	38	31 5														
57.767	64.623	4132	612.2(1504)	1.2340	22.519	3355											
57.767	10.770	2856	63.8(969)	1.2848	22.560	2844	1.962	5236	2.630	0.28439	27.719	0.3753	5548	23.477	200.2	1.01	0.51
COMBUSTOR	0	39	32 7														
58.787	116.011	3409	608.8(1224)	1.2764	21.831	3148											
58.787	5.925	1691	-60.5(563)	1.3387	21.834	2270	2.549	5787	2.633	0.28655	27.719	0.3777	5559	25.771	200.5	1.01	0.30
COMBUSTOR	0	40	33 7														
60.797	52.351	4790	602.7(1763)	1.1794	23.230	3077											
60.797	17.212	4024	185.1(1440)	1.2179	23.437	3224	1.818	4571	2.674	0.29652	27.719	0.3859	5547	21.963	200.1	1.01	0.76
COMBUSTOR	0	41	34 4														
62.217	55.294	4663	598.0(1713)	1.1913	23.106	3457											
62.217	16.294	3790	155.6(1340)	1.2355	23.263	3163	1.487	4705	2.664	0.30456	27.719	0.3953	5537	22.271	199.7	1.01	0.70
COMBUSTOR	0	42	35 6														
64.681	47.698	5038	589.0(1861)	1.1553	23.523	3508											
64.681	20.919	4551	257.3(1650)	1.1690	23.824	3332	1.223	4074	2.684	0.28868	27.719	0.3749	5519	18.277	199.1	1.01	0.92
COMBUSTOR	0	43	36 204														
65.057	43.762	5118	587.4(1893)	1.1483	23.605	3518											
65.057	21.162	4713	288.8(1716)	1.1554	23.915	3365	1.149	3866	2.688	0.26836	27.719	0.4032	5516	16.123	199.0	1.01	1.00
COMBUSTOR REGEN		44	37 4														
65.057	43.762	5175	645.8(1918)	1.1465	23.522	3541											
65.057	21.984	4796	357.8(1752)	1.1519	23.830	3395	1.118	3797	2.700	0.26838	27.719	0.4032	5542	15.835	199.9	1.01	1.00
NOZZLE AE		45	38 5														
87.293	43.762	5118	587.4(1859)	1.1483	23.605	3518											
87.293	1.438	3109	-577.3(1053)	1.2533	24.447	2815	2.712	7634	2.688	0.05587	27.719	1.9371	7291	6.628	263.0	1.01	1.00
NOZZLE PO		46	39 5														
87.293	43.762	5118	587.4(1859)	1.1483	23.605	3518											
87.293	0.404	2376	-659.3(772)	1.2806	24.452	2487	3.421	8508	2.688	0.02287	27.719	4.7319	7820	3.024	282.1	1.01	1.00
NOZZLE AE REGEN		47	40 5														
87.293	43.762	5175	645.8(1918)	1.1465	23.522	3541											
87.293	1.476	3212	-534.8(1093)	1.2451	24.443	2852	2.695	7686	2.700	0.05587	27.719	1.9371	7354	6.673	265.3	1.01	1.00
NOZZLE PO REGEN		48	41 5														
87.293	43.762	5175	645.8(1918)	1.1465	23.522	3541											
87.293	0.404	2449	-636.0(800)	1.2781	24.452	2523	3.409	8599	2.700	0.02242	27.719	4.8268	7908	2.996	285.3	1.01	1.00
FICTIVE COMBUSTR		67	60 0														
65.057	301.775	5355	587.4(1988)	1.1653	23.861	3606											
65.057	0.404	1502	-1168.6(463)	1.3208	24.452	2008	4.668	9374	2.527	0.03986	27.719	2.7148	6357	5.807	301.5	1.01	1.00
FICTIVE NOZZLE		68	61 0														
87.293	23.157	5012	565.8(1849)	1.1438	23.546	3479											
87.293	1.939	3659	-328.2(1273)	1.2024	24.370	2996	2.231	6685	2.738	0.05587	27.719	1.9371	6727	5.805	242.5	1.01	1.00

XABS	P-IB	P-OB	PDA	QDX	V-IB	Q-OB	CANALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.035E 00	0.000	-4.430E-01	0.000	0.000	0.000	2.470E-02	2.565E 00	1.383E-03	0.000	0.000
1.836E 01	1.035E 00	0.000	-3.447E 01	0.000	0.000	0.000	1.634E 02	2.565E 00	1.383E-03	0.000	0.000
3.070E 01	2.190E 00	0.000	-1.652E 02	0.000	0.000	0.000	5.053E 02	5.427E 00	2.927E-03	0.000	0.000
3.508E 01	3.889E 00	0.000	-3.622E 02	0.000	0.000	0.000	6.804E 02	9.636E 00	5.197E-03	0.000	0.000
3.519E 01	3.878E 00	5.947E 00	-4.302E 02	0.000	0.000	0.000	6.855E 02	9.609E 00	5.183E-03	1.474E 01	7.948E-03
3.520E 01	3.878E 00	5.910E 00	-4.302E 02	0.000	0.000	0.000	6.858E 02	9.608E 00	5.182E-03	1.465E 01	7.899E-03
3.555E 01	3.845E 00	3.755E 00	-4.368E 02	0.000	0.000	0.000	7.208E 02	9.528E 00	5.139E-03	9.305E 00	5.019E-03
3.587E 01	3.870E 00	1.800E 00	-4.513E 02	-1.669E 02	-1.669E 02	0.000	7.530E 02	9.589E 00	5.172E-03	4.460E 00	2.406E-03
3.606E 01	3.885E 00	2.607E 00	-4.618E 02	-1.687E 02	-1.687E 02	0.000	7.727E 02	9.627E 00	5.192E-03	6.460E 00	3.484E-03
3.648E 01	4.222E 00	4.362E 00	-4.818E 02	-1.729E 02	-1.729E 02	0.000	8.164E 02	1.046E 01	5.643E-03	1.081E 01	5.829E-03
3.701E 01	4.225E 00	6.576E 00	-5.066E 02	-1.928E 02	-1.783E 02	-1.448E 01	8.722E 02	1.047E 01	5.647E-03	1.630E 01	8.789E-03
3.733E 01	4.082E 00	7.900E 00	-5.181E 02	-2.011E 02	-1.817E 02	-1.937E 01	9.064E 02	1.012E 01	5.456E-03	1.958E 01	1.056E-02
3.803E 01	3.765E 00	1.327E 01	-5.312E 02	-2.196E 02	-1.897E 02	-2.992E 01	9.832E 02	9.329E 00	5.032E-03	3.288E 01	1.773E-02
3.835E 01	3.306E 00	1.569E 01	-5.291E 02	-2.286E 02	-1.940E 02	-3.462E 01	1.019E 03	1.315E 01	7.091E-03	3.887E 01	2.097E-02
3.875E 01	7.266E 00	1.527E 01	-5.292E 02	-2.418E 02	-2.012E 02	-4.055E 01	1.064E 03	1.800E 01	9.710E-03	3.784E 01	2.041E-02
3.882E 01	7.591E 00	1.520E 01	-5.293E 02	-2.442E 02	-2.026E 02	-4.153E 01	1.072E 03	1.881E 01	1.014E-02	3.766E 01	2.031E-02
3.901E 01	8.530E 00	1.558E 01	-5.289E 02	-2.514E 02	-2.070E 02	-4.435E 01	1.094E 03	2.114E 01	1.140E-02	3.860E 01	2.082E-02
3.933E 01	1.386E 01	1.620E 01	-5.338E 02	-2.643E 02	-2.154E 02	-4.894E 01	1.130E 03	3.435E 01	1.853E-02	4.014E 01	2.165E-02
3.950E 01	1.677E 01	1.238E 01	-5.421E 02	-2.720E 02	-2.206E 02	-5.143E 01	1.150E 03	4.157E 01	2.242E-02	3.068E 01	1.655E-02
3.982E 01	1.727E 01	5.400E 00	-5.656E 02	-2.873E 02	-2.314E 02	-5.590E 01	1.187E 03	4.278E 01	2.308E-02	1.338E 01	7.217E-03
4.000E 01	1.755E 01	5.189E 00	-5.825E 02	-2.969E 02	-2.385E 02	-5.844E 01	1.209E 03	4.349E 01	2.345E-02	1.286E 01	6.934E-03
4.040E 01	2.085E 01	4.727E 00	-6.213E 02	-3.197E 02	-2.550E 02	-6.465E 01	1.256E 03	5.166E 01	2.787E-02	1.171E 01	6.318E-03
4.041E 01	2.093E 01	4.716E 00	-6.222E 02	-3.203E 02	-2.555E 02	-6.483E 01	1.257E 03	5.187E 01	2.798E-02	1.168E 01	6.302E-03
4.130E 01	2.829E 01	3.687E 00	-7.278E 02	-4.009E 02	-2.967E 02	-1.042E 02	1.362E 03	7.010E 01	3.781E-02	9.135E 00	4.927E-03
4.131E 01	2.837E 01	3.675E 00	-7.291E 02	-4.021E 02	-2.972E 02	-1.049E 02	1.363E 03	7.030E 01	3.792E-02	9.106E 00	4.911E-03
4.138E 01	2.891E 01	3.600E 00	-7.377E 02	-4.101E 02	-3.004E 02	-1.097E 02	1.371E 03	7.163E 01	3.864E-02	8.920E 00	4.811E-03
4.150E 01	2.992E 01	5.828E 00	-7.534E 02	-4.260E 02	-3.066E 02	-1.193E 02	1.386E 03	7.415E 01	3.999E-02	1.444E 01	7.789E-03
4.246E 01	3.349E 01	2.319E 01	-8.258E 02	-5.807E 02	-3.610E 02	-2.197E 02	1.501E 03	8.298E 01	4.475E-02	5.746E 01	3.099E-02
4.410E 01	5.665E 01	5.279E 01	-8.324E 02	-9.151E 02	-4.794E 02	-4.356E 02	1.699E 03	1.404E 02	7.571E-02	1.308E 02	7.056E-02
4.431E 01	5.967E 01	5.323E 01	-8.350E 02	-9.927E 02	-4.973E 02	-4.653E 02	1.725E 03	1.478E 02	7.974E-02	1.319E 02	7.113E-02
4.480E 01	6.660E 01	5.422E 01	-8.460E 02	-1.079E 03	-5.407E 02	-5.386E 02	1.784E 03	1.650E 02	8.901E-02	1.343E 02	7.246E-02
4.481E 01	6.653E 01	5.424E 01	-8.470E 02	-1.082E 03	-5.418E 02	-5.405E 02	1.786E 03	1.649E 02	8.892E-02	1.344E 02	7.249E-02
4.625E 01	5.851E 01	5.715E 01	-7.782E 02	-1.451E 03	-6.688E 02	-7.826E 02	1.963E 03	1.450E 02	7.820E-02	1.416E 02	7.638E-02
4.626E 01	5.846E 01	5.717E 01	-7.772E 02	-1.454E 03	-6.697E 02	-7.844E 02	1.964E 03	1.449E 02	7.812E-02	1.417E 02	7.641E-02
4.731E 01	5.260E 01	5.930E 01	-6.310E 02	-1.730E 03	-7.565E 02	-9.735E 02	2.094E 03	1.303E 02	7.030E-02	1.469E 02	7.925E-02
4.734E 01	5.265E 01	5.935E 01	-6.276E 02	-1.737E 03	-7.587E 02	-9.783E 02	2.097E 03	1.305E 02	7.036E-02	1.471E 02	7.932E-02
4.811E 01	5.405E 01	5.084E 01	-4.904E 02	-1.929E 03	-8.195E 02	-1.109F 03	2.194E 03	1.339E 02	7.224E-02	1.260E 02	6.795E-02
4.878E 01	4.351E 01	4.351E 01	-3.430E 02	-2.079E 03	-8.700E 02	-1.209E 03	2.277E 03	1.078E 02	5.815E-02	1.078E 02	5.815E-02
4.879E 01	4.340E 01	4.340E 01	-3.407E 02	-2.081E 03	-8.707E 02	-1.210E 03	2.278E 03	1.075E 02	5.800E-02	1.075E 02	5.800E-02
4.932E 01	3.757E 01	3.757E 01	-2.289E 02	-2.189E 03	-9.095E 02	-1.280E 03	2.345E 03	9.309E 01	5.021E-02	9.309E 01	5.021E-02
5.073E 01	3.148E 01	3.148E 01	2.633E 01	-2.452E 03	-1.007E 03	-1.445E 03	2.522E 03	7.801E 01	4.207E-02	7.801E 01	4.207E-02
5.283E 01	2.190E 01	2.190E 01	3.202E 02	-2.789E 03	-1.137E 03	-1.652E 03	2.789E 03	5.427E 01	2.927E-02	5.427E 01	2.927E-02
5.333E 01	2.027E 01	2.027E 01	3.750E 02	-2.861E 03	-1.165E 03	-1.696E 03	2.852E 03	5.024E 01	2.710E-02	5.024E 01	2.710E-02
5.408E 01	1.840E 01	1.840E 01	4.499E 02	-2.965E 03	-1.205E 03	-1.760E 03	2.948E 03	4.559E 01	2.459E-02	4.559E 01	2.459E-02
5.484E 01	1.650E 01	1.650E 01	5.175E 02	-3.067E 03	-1.244E 03	-1.823E 03	3.046E 03	4.089E 01	2.205E-02	4.089E 01	2.205E-02
5.576E 01	1.524E 01	1.524E 01	5.910E 02	-3.183E 03	-1.287E 03	-1.896E 03	3.164E 03	3.777E 01	2.037E-02	3.777E 01	2.037E-02
5.626E 01	1.456E 01	1.456E 01	7.669E 02	-3.242E 03	-1.308E 03	-1.934F 03	3.209E 03	3.607E 01	1.945E-02	3.607E 01	1.945E-02
5.632E 01	8.437E 00	1.448E 01	7.710E 02	-3.248E 03	-1.311E 03	-1.938E 03	3.216E 03	2.091F 01	1.128E-02	3.588E 01	1.935E-02
5.646E 01	8.437E 00	1.429E 01	7.804E 02	-3.264E 03	-1.316E 03	-1.948E 03	3.234E 03	2.091F 01	1.128E-02	3.541E 01	1.910E-02
5.654E 01	1.418E 01	1.418E 01	7.861E 02	-3.273E 03	-1.319E 03	-1.954F 03	3.245E 03	3.514E 01	1.895E-02	3.514E 01	1.895E-02
5.682E 01	1.380E 01	1.380E 01	8.044E 02	-3.304E 03	-1.329E 03	-1.975E 03	3.280E 03	3.420E 01	1.844E-02	3.420E 01	1.844E-02
5.704E 01	1.308E 01	1.308E 01	8.174E 02	-3.328E 03	-1.337E 03	-1.991E 03	3.309E 03	3.241E 01	1.748E-02	3.241E 01	1.748E-02
5.777E 01	1.077E 01	1.077E 01	8.498E 02	-3.406E 03	-1.362E 03	-2.044F 03	3.402E 03	2.669E 01	1.439E-02	2.669E 01	1.439E-02
5.879E 01	5.925E 00	5.925E 00	8.691E 02	-3.499E 03	-1.392E 03	-2.107E 03	3.532E 03	1.466E 01	7.918E-03	1.466E 01	7.918E-03
6.080E 01	1.721E 01	1.721E 01	8.718E 02	-3.669E 03	-1.443F 03	-2.226F 03	3.790E 03	4.265E 01	2.300E-02	4.265E 01	2.300E-02
6.222E 01	1.629E 01	1.629E 01	8.718E 02	-3.799E 03	-1.479E 03	-2.319F 03	3.972E 03	4.037E 01	2.178E-02	4.037E 01	2.178E-02

READING = 0064 BLOCK = 71 TIME = 167.811 MACH 5.0 PI = 748.249 TI = 3063.1

XABS	P-IB	P-OB	PDA	QQX	Q-IP	Q-OB	CA-ALI	P-TB/PSO	P-IP/PTO	P-OB/PSO	P-OB/PTO
6.468E 01	2.092E 01	2.092E 01	8.718E 02	-4.050E 03	-1.557E 03	-2.493E 03	4.289E 03	5.183E 01	2.796E-02	5.183E 01	2.796E-02
6.506E 01	2.070E 01	2.162E 01	8.718E 02	-4.093E 03	-1.571E 03	-2.522E 03	4.337E 03	5.129E 01	2.766E-02	5.358E 01	2.890E-02
6.510E 01	2.070E 01	2.170E 01	8.718E 02	-4.098E 03	-1.573E 03	-2.525E 03	4.342E 03	5.129E 01	2.766E-02	5.377E 01	2.900E-02
6.530E 01	1.968E 01	2.207E 01	8.718E 02	-4.120E 03	-1.580E 03	-2.540E 03	4.368E 03	4.876E 01	2.630E-02	5.470E 01	2.950E-02
6.696E 01	1.419E 01	9.320E 00	1.045E 03	-4.273E 03	-1.630E 03	-2.644E 03	4.583E 03	2.773E 01	1.495E-02	2.309E 01	1.246E-02
6.763E 01	8.026E 00	9.045E 00	1.236E 03	-4.322E 03	-1.644E 03	-2.678E 03	4.665E 03	1.989E 01	1.073E-02	2.241E 01	1.209E-02
6.840E 01	4.390E 00	6.906E 00	1.429E 03	-4.375E 03	-1.658E 03	-2.716E 03	4.760E 03	1.088E 01	5.867E-03	1.711E 01	9.229E-03
6.912E 01	3.453E 00	4.905E 00	1.554E 03	-4.422E 03	-1.668E 03	-2.753E 03	4.848E 03	8.557E 00	4.615E-03	1.215E 01	6.555E-03
6.973E 01	2.660E 00	4.109E 00	1.635E 03	-4.459E 03	-1.675E 03	-2.784E 03	4.922E 03	6.591E 00	3.555E-03	1.018E 01	5.492E-03
7.068E 01	1.913E 00	2.870E 00	1.725E 03	-4.513E 03	-1.684E 03	-2.829E 03	5.036E 03	4.740E 00	2.557E-03	7.112E 00	3.836E-03
7.111E 01	1.575E 00	2.656E 00	1.757E 03	-4.534E 03	-1.686E 03	-2.847E 03	5.088E 03	3.903E 00	2.105E-03	6.582E 00	3.550E-03
7.264E 01	1.420E 00	1.895E 00	1.845E 03	-4.590E 03	-1.695E 03	-2.895E 03	5.273E 03	3.520E 00	1.898E-03	4.696E 00	2.533E-03
7.354E 01	1.329E 00	5.150E-01	1.893E 03	-4.618E 03	-1.700E 03	-2.919E 03	5.372E 03	3.294E 00	1.777E-03	1.276E 00	6.883E-04
7.354E 01	1.329E 00	5.089E-01	1.894E 03	-4.619E 03	-1.700E 03	-2.919E 03	5.372E 03	3.293E 00	1.776E-03	1.261E 00	6.801E-04
7.487E 01	1.195E 00	0.000	1.921E 03	-4.666E 03	-1.706E 03	-2.960E 03	5.424E 03	2.961E 00	1.597E-03	0.000	0.000
7.772E 01	2.130E 00	0.000	1.988E 03	-4.677E 03	-1.716E 03	-2.960E 03	5.523E 03	5.278E 00	2.847E-03	0.000	0.000
8.162E 01	1.430E 00	0.000	2.064E 03	-4.688E 03	-1.727E 03	-2.960E 03	5.628E 03	3.543E 00	1.911E-03	0.000	0.000
8.443E 01	1.135E 00	0.000	2.092E 03	-4.697E 03	-1.737E 03	-2.960E 03	5.682E 03	2.812E 00	1.517E-03	0.000	0.000
8.729E 01	1.650E 00	0.000	2.126E 03	-4.714E 03	-1.754E 03	-2.960E 03	5.705E 03	4.089E 00	2.205E-03	0.000	0.000
8.729E 01	1.651E 00	0.000	2.126E 03	-4.714E 03	-1.754E 03	-2.960E 03	5.705E 03	4.091E 00	2.207E-03	0.000	0.000

READING = 0064 BLOCK = 71 TIME = 167.811 MACH 6.0 PI = 708.249 TT = 3063.1

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.152E 02	1.152E 02	2.208E-03	4.383E-02
4.041E 01	1.797E-01	1.154E 02	2.209E-03	4.384E-02
4.130E 01	1.793E 01	1.333E 02	2.799E-03	4.001E-02
4.131E 01	2.049E-01	1.335E 02	2.451E-03	4.410E-02
4.138E 01	1.252E 00	1.347E 02	2.398E-03	4.514E-02
4.150E 01	2.334E 00	1.371E 02	2.407E-03	4.813E-02
4.246E 01	1.740E 01	1.545E 02	2.503E-03	6.292E-02
4.410E 01	2.611E 01	1.806E 02	2.783E-03	7.952E-02
4.431E 01	3.123E 00	1.837E 02	3.064E-03	7.177E-02
4.480E 01	7.245E 00	1.910E 02	3.086E-03	7.182E-02
4.481E 01	1.704E-01	1.911E 02	3.082E-03	7.190E-02
4.625E 01	2.089E 01	2.120E 02	3.343E-03	6.613E-02
4.626E 01	1.398E-01	2.122E 02	2.975E-03	7.595E-02
4.731E 01	1.331E 01	2.255E 02	2.925E-03	7.519E-02
4.734E 01	3.405E-01	2.258E 02	3.029E-03	7.225E-02
4.811E 01	9.694E 00	2.355E 02	2.982E-03	7.112E-02
4.878E 01	8.776E 00	2.443E 02	3.259E-03	6.178E-02
4.879E 01	1.336E-01	2.444E 02	2.971E-03	6.847E-02
4.932E 01	6.743E 00	2.512E 02	2.909E-03	6.488E-02
5.073E 01	1.715E 01	2.683E 02	2.855E-03	5.826E-02
5.283E 01	2.393E 01	2.922E 02	2.859E-03	4.560E-02
5.333E 01	5.603E 00	2.978E 02	2.930E-03	4.216E-02
5.408E 01	8.298E 00	3.061E 02	2.905E-03	3.953E-02
5.484E 01	8.149E 00	3.143E 02	2.890E-03	3.666E-02
5.576E 01	9.530E 00	3.238E 02	2.862E-03	3.465E-02
5.626E 01	3.156E 00	3.270E 02	2.837E-03	3.158E-02
5.632E 01	4.651E-01	3.274E 02	3.025E-03	2.578E-02
5.646E 01	1.212E 00	3.286E 02	2.849E-03	2.691E-02
5.654E 01	7.219E-01	3.294E 02	3.385E-03	2.687E-02
5.682E 01	2.530E 00	3.319E 02	3.009E-03	2.891E-02
5.704E 01	1.942E 00	3.338E 02	2.988E-03	2.813E-02
5.777E 01	6.314E 00	3.402E 02	2.924E-03	2.522E-02
5.879E 01	9.186E 00	3.493E 02	2.784E-03	1.734E-02
6.080E 01	1.610E 01	3.654E 02	2.547E-03	3.800E-02
6.222E 01	1.122E 01	3.767E 02	3.135E-03	3.054E-02
6.468E 01	2.014E 01	3.968E 02	3.150E-03	3.365E-02
6.506E 01	2.701E 00	3.995E 02	3.360E-03	3.097E-02
6.510E 01	2.827E-01	3.998E 02	3.471E-03	3.143E-02
6.530E 01	1.440E 00	4.012E 02	3.469E-03	3.130E-02
6.696E 01	1.214E 01	4.134E 02	3.410E-03	2.251E-02
6.763E 01	4.474E 00	4.178E 02	3.399E-03	2.016E-02
6.840E 01	4.675E 00	4.225E 02	3.371E-03	1.542E-02
6.912E 01	3.720E 00	4.262E 02	3.342E-03	1.250E-02
6.973E 01	2.755E 00	4.290E 02	3.319E-03	1.074E-02
7.068E 01	3.661E 00	4.326E 02	3.270E-03	8.290E-03
7.111E 01	1.449E 00	4.341E 02	3.251E-03	7.551E-03
7.264E 01	4.596E 00	4.387E 02	3.207E-03	6.248E-03
7.354E 01	1.935E 00	4.406E 02	3.119E-03	5.961E-03
7.354E 01	2.568E-03	4.406E 02	3.118E-03	5.950E-03
7.487E 01	8.953E-01	4.415E 02	3.144E-03	4.830E-03
7.772E 01	2.223E 00	4.437E 02	3.219E-03	7.503E-03
8.162E 01	2.482E 00	4.462E 02	3.134E-03	5.462E-03
8.443E 01	1.050E 00	4.473E 02	3.086E-03	4.562E-03
8.729E 01	4.561E-01	4.477E 02	3.128E-03	6.067E-03
8.729E 01	0.000	4.477E 02	3.128E-03	6.070E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1600.	(LBF)
MEASURED THRUST	1489.	(LBF)
CALCULATED SPECIFIC IMPULSE	2002.	(LBF*SEC/LBM)
MEASURED SPECIFIC IMPULSE	1862.	(LBF*SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.6249	
MEASURED THRUST COEFFICIENT	0.5813	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	6780.	(LBF)
NET THRUST	1659.	(LBF)
SPECIFIC IMPULSE	2075.	(LBF*SEC/LBM)
THRUST COEFFICIENT	0.6478	

MOMENTUM AND FORCES

INLET FRICTION DRAG	115.2	(LBF)
INLET MOMENTUM CHANGE	-736.5	(LBF)
COMBUSTOR FRICTION DRAG	284.3	(LBF)
COMBUSTOR STRUT DRAG	-6.10	(LBF)
COMBUSTOR MOMENTUM CHANGE	1131.	(LBF)
NOZZLE FRICTION DRAG	48.24	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1206.	(LBF)
NOZZLE PRESSURE INTEGRAL	1254.	(LBF)
EXTERNAL FRICTION DRAG	46.03	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1060.	(LBF)
TOTAL EXTERNAL DRAG	-1106.	(LBF)
TOTAL STRUT DRAG	-6.10	(LBF)
CAVITY FORCE	-1146.	(LBF)
CALCULATED LOAD CELL FORCE	-651.	(LBF)
MEASURED LOAD CELL FORCE	-763.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, -153.6, -119.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3168	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.201	(IN)
NOZZLE SHROUD TRAILING EDGE	73.541	(IN)
NOZZLE PLUG TRAILING EDGE	87.293	(IN)
STRUT LEADING EDGE	56.457	(IN)
STRUT TRAILING EDGE	65.057	(IN)
COMBUSTOR EXIT	65.057	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9791	
ADDITIVE DRAG COEFFICIENT	0.0010	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1655	
DELTA PT2	0.1198	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4033	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1678	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.6946	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9042	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9446	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8933	
ENTHALPY AT P0 - SUPERSONIC	-0.07	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	36.72	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0297	
EQUIVALENCE RATIO	1.011	
COMBUSTOR EFFICIENCY	1.000	
TOTAL PRESSURE RATIO	0.1450	
COMBUSTOR EFFECTIVENESS	0.8648	
INJECTOR DISCHARGE COEFFICIENTS	0.7389,	0.7779, 0.7119,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9219
NOZZLE COEFFICIENT - CT	0.8340
PROCESS EFFICIENCY	0.7826
KINETIC ENERGY EFFICIENCY	0.8217

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.302	B
1C	44.300	
2A	48.777	D
2C	46.250	A
3A	54.067	
3B	56.252	
4	44.802	

Reading 64

$t = 202.01$ sec.

3-3-75

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	747.749	2986	666.7(	792)	1.2941	28.852	2581											
0.000	0.390	404	-32.1(	97)	1.3987	28.851	986	5.995	5913	1.827	0.10672	26.933	0.9854	5049	9.807	187.5		
SPIKE TIP NS		2	0	4														
0.600	18.125	2986	666.7(	792)	1.2940	28.851	2581											
0.600	16.368	2918	646.0(	772)	1.2962	28.851	2553	0.399	1019	2.083	0.10672	26.933	0.9854	4984	1.690	185.0		
WIND TUNNEL		3	0	0														
0.000	747.749	2986	666.7(	792)	1.2941	28.852	2581											
0.000	0.381	401	-32.7(	97)	1.3987	28.851	983	6.017	5916	1.827	0.10503	26.507	0.9854	4971	9.656	187.5		
SPIKE TIP NS		4	0	0														
0.600	18.125	2986	666.7(	792)	1.2940	28.851	2581											
0.600	16.430	2920	646.7(	773)	1.2961	28.851	2554	0.391	1000	2.083	0.10503	26.507	0.9854	4970	1.632	187.5		
INLET THROAT		5	0	3														
40.400	301.426	2948	655.2(	781)	1.2953	28.851	2565											
40.400	15.560	1428	223.7(	353)	1.3530	28.851	1825	2.546	4647	1.885	0.94512	26.933	0.1113	4333	68.251	160.9		
INLET UPNRSK		6	0	3														
40.400	301.426	2948	655.2(	781)	1.2953	28.851	2565											
40.400	13.371	1373	209.1(	338)	1.3563	28.851	1791	2.638	4725	1.885	0.85920	26.933	0.1224	4374	63.089	162.4		
INLET DNNRSK		7	0	4														
40.400	124.152	2948	655.2(	781)	1.2953	28.851	2565											
40.400	106.764	2848	625.1(	752)	1.2984	28.851	2524	0.486	1228	1.946	0.85920	26.933	0.1224	4374	16.393	162.4		
COMBUSTOR	0	8	1	3														
40.410	300.828	2948	655.2(	781)	1.2953	28.851	2565											
40.410	15.575	1429	224.0(	353)	1.3529	28.851	1826	2.545	4645	1.885	0.94500	26.933	0.1113	4333	68.219	160.9		
COMBUSTOR	0	9	2	3														
41.314	244.906	2942	653.4(	780)	1.2955	28.851	2563											
41.314	17.746	1557	257.8(	387)	1.3458	28.851	1900	2.342	4449	1.899	0.94709	26.933	0.1110	4229	65.488	157.0		
COMBUSTOR	0	10	3	3														
41.379	240.563	2942	653.3(	779)	1.2955	28.851	2563											
41.379	17.915	1567	260.5(	390)	1.3452	28.851	1906											
								2.326	4433	1.900	0.94656	26.933	0.1111	4221	65.216	156.7		
COMBUSTOR	0	11	4	3														
41.500	233.847	2941	653.0(	779)	1.2955	28.851	2562											
41.500	18.275	1585	265.6(	395)	1.3443	28.851	1916	2.297	4403	1.902	0.94757	26.933	0.1110	4205	64.836	156.1		
COMBUSTOR	0	12	5	5														
42.460	206.691	2931	649.9(	776)	1.2959	28.851	2558											
42.460	19.521	1657	285.0(	414)	1.3406	28.851	1957	2.184	4273	1.909	0.93965	26.933	0.1119	4136	62.396	153.6		
COMBUSTOR	0	13	6	4														
44.099	191.553	2909	643.4(	770)	1.2965	28.851	2549											
44.099	19.227	1669	288.3(	418)	1.3400	28.851	1963	2.147	4215	1.912	0.90643	26.933	0.1160	4100	59.379	152.2		
COMBUSTOR	0	14	7	4														
44.310	189.786	2906	642.5(	769)	1.2966	28.851	2548											
44.310	19.285	1673	289.2(	418)	1.3399	28.851	1965	2.139	4205	1.913	0.90507	26.933	0.1162	4094	59.141	152.0		
COMBUSTOR	0	15	8	4														
44.800	184.960	2900	640.6(	767)	1.2968	28.851	2546											
44.800	19.466	1684	292.2(	421)	1.3394	28.851	1971	2.118	4176	1.914	0.90138	26.933	0.1167	4077	58.493	151.4		
COMBUSTOR	0	16	9	4														
44.814	184.817	2900	640.6(	767)	1.2968	28.851	2546											
44.814	19.475	1684	292.3(	422)	1.3393	28.851	1972	2.117	4175	1.914	0.90134	26.933	0.1167	4077	58.478	151.4		
COMBUSTOR	0	17	10	4														
46.260	166.516	2883	635.6(	762)	1.2973	28.851	2539											
46.260	16.844	1704	297.7(	427)	1.3384	28.851	1982	2.074	4112	1.919	0.84901	26.933	0.1239	4040	54.256	150.0		
COMBUSTOR	0	18	11	4														
47.310	152.539	2872	632.3(	759)	1.2977	28.851	2534											
47.310	17.676	1707	298.5(	428)	1.3383	28.851	1984	2.060	4087	1.924	0.79013	26.933	0.1331	4024	50.183	149.4		

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	A	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 4														
47.339	152.183	2872	632.2(759)	1.2977	28.851	2534											
47.339	17.665	1708	298.6(428)	1.3382	28.851	1984	2.059	4085	1.924	0.78912	26.933	0.1333	4023	50.100	149.4		
COMBUSTOR	0	20	13 5														
48.110	144.075	2864	629.8(756)	1.2979	28.851	2531											
48.110	16.258	1690	293.9(423)	1.3391	28.851	1975	2.076	4100	1.927	0.73623	26.933	0.1428	4027	46.906	149.5		
COMBUSTOR	0	21	14 4														
48.789	138.646	2857	627.9(755)	1.2981	28.851	2528											
48.789	14.415	1651	283.4(413)	1.3409	28.851	1953	2.125	4152	1.929	0.67667	26.933	0.1554	4049	43.661	150.3		
COMBUSTOR	0	22	15 3														
49.319	135.981	2853	626.4(753)	1.2983	28.851	2526											
49.319	13.010	1614	273.2(403)	1.3428	28.851	1932	2.176	4204	1.930	0.63284	26.933	0.1662	4073	41.347	151.2		
COMBUSTOR	0	23	16 5														
50.729	139.284	2840	622.7(750)	1.2987	28.851	2521											
50.729	9.758	1482	238.0(367)	1.3499	28.851	1857											
							2.363	4388	1.927	0.53936	26.933	0.1950	4160	36.778	154.5		
COMBUSTOR	0	24	17 10														
52.829	181.918	2819	616.5(743)	1.2993	28.851	2513											
52.829	6.008	1205	165.6(295)	1.3666	28.851	1685	2.819	4750	1.907	0.44206	26.933	0.2379	4342	32.630	161.2		
COMBUSTOR	0	25	18 12														
53.329	204.272	2813	614.6(742)	1.2995	28.851	2510											
53.329	5.269	1185	145.0(274)	1.3717	28.851	1630	2.973	4847	1.898	0.42400	26.933	0.2480	4393	31.941	163.1		
COMBUSTOR	0	26	19 5														
54.069	53.632	3917	626.5(1211)	1.2442	26.202	3041											
54.069	23.554	3313	401.3(1002)	1.2688	26.225	2823	1.189	3357	2.310	0.40498	27.270	0.2629	4431	21.126	162.5	0.43	0.73
COMBUSTOR	0	27	20 2														
54.079	53.596	3920	626.5(1212)	1.2440	26.206	3042											
54.079	23.577	3317	401.5(1004)	1.2686	26.229	2824	1.188	3355	2.310	0.40467	27.270	0.2631	4432	21.098	162.5	0.43	0.73
COMBUSTOR	0	28	21 4														
54.839	51.114	4166	623.1(1293)	1.2272	26.509	3096											
54.839	25.312	3643	417.7(1111)	1.2506	26.550	2921	1.098	3206	2.322	0.38268	27.270	0.2782	4521	19.065	165.8	0.43	0.89
COMBUSTOR	0	29	22 202														
55.760	49.734	4327	618.7(1347)	1.2151	26.721	3128											
55.760	26.272	3855	424.9(1180)	1.2372	26.779	2976	1.047	3114	2.326	0.35940	27.270	0.2962	4633	17.395	169.9	0.43	1.00
COMBUSTOR	0	30	23 4														
56.254	43.528	4563	645.1(1608)	1.1975	23.857	3375											
56.254	26.786	4214	468.0(1467)	1.2146	23.933	3261	0.913	2977	2.599	0.29314	27.607	0.3677	5077	13.564	183.9	0.85	0.71
COMBUSTOR	0	31	24 2														
56.264	43.525	4566	645.1(1609)	1.1973	23.860	3375											
56.264	26.797	4217	468.0(1469)	1.2143	23.937	3261	0.913	2977	2.599	0.29298	27.607	0.3679	5079	13.553	184.0	0.85	0.71
COMBUSTOR	0	32	25 4														
56.319	43.349	4606	644.8(1624)	1.1938	23.906	3382											
56.319	25.502	4228	450.4(1472)	1.2122	23.995	3259	0.957	3119	2.601	0.29211	27.607	0.3690	5086	14.159	184.2	0.85	0.73
COMBUSTOR	0	33	26 3														
56.459	43.204	4636	644.1(1636)	1.1912	23.941	3387											
56.459	25.575	4266	450.8(1486)	1.2091	24.035	3266	0.952	3110	2.602	0.29001	27.607	0.3717	5103	14.017	184.8	0.85	0.74
COMBUSTOR	0	34	27 4														
56.539	43.879	4630	643.7(1633)	1.1919	23.935	3386											
56.539	27.083	4288	465.4(1495)	1.2083	24.022	3275	0.912	2987	2.600	0.29326	27.607	0.3675	5112	13.612	185.2	0.85	0.74
COMBUSTOR	0	35	28 4														
56.819	44.039	4664	642.3(1654)	1.1874	23.998	3394											
56.819	27.375	4352	464.8(1519)	1.2029	24.094	3287	0.907	2980	2.602	0.29229	27.607	0.3688	5143	13.537	186.3	0.85	0.76
COMBUSTOR	0	36	29 4														
57.045	44.177	4726	641.2(1669)	1.1839	24.047	3401											
57.045	27.561	4400	463.7(1537)	1.1987	24.151	3295	0.904	2980	2.602	0.29174	27.607	0.3695	5165	13.512	187.1	0.85	0.78
COMBUSTOR	0	37	30 4														
57.769	44.148	4826	637.8(1707)	1.1752	24.168	3416											
57.769	26.155	4527	465.3(1585)	1.1876	24.286	3317	0.886	2938	2.604	0.28722	27.607	0.3753	5227	13.114	189.3	0.85	0.84

READING = 0064 BLOCK = 109 TIME = 202.011 MACH 6.0 P1 = 747.749 T1 = 2986.3

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 4														
58.789	44.309	4914	633.1(1740)	1.1674	24.279	3428											
58.789	28.387	4630	459.8(1623)	1.1778	24.420	3332	0.884	2945	2.605	0.28538	27.607	0.3777	5273	13.063	191.0	0.85	0.89
COMBUSTOR	0	39	32 2														
60.799	45.381	4902	624.4(1735)	1.1686	24.288	3424											
60.799	27.750	4585	434.1(1605)	1.1806	24.437	3319	0.930	3086	2.601	0.29531	27.607	0.3650	5242	14.161	189.9	0.85	0.89
COMBUSTOR	0	40	33 4														
62.219	46.241	4874	618.4(1724)	1.1711	24.272	3419											
62.219	26.719	4515	408.3(1577)	1.1856	24.428	3301	0.982	3243	2.598	0.30332	27.607	0.3553	5214	15.285	188.9	0.85	0.88
COMBUSTOR REGEN		41	34 21														
62.219	46.241	4920	651.6(1743)	1.1685	24.236	3434											
62.219	26.930	4571	441.9(1600)	1.1818	24.400	3318	0.976	3239	2.605	0.30332	27.607	0.3553	5230	15.268	189.5	0.85	0.88
NOZZLE AE		42	35 5														
87.295	46.241	4874	618.4(1710)	1.1711	24.272	3419											
87.295	1.179	2489	=467.4(795)	1.2839	24.633	2540	2.902	7371	2.598	0.05564	27.607	1.9371	6909	6.374	250.3	0.85	0.88
NOZZLE PO		43	36 5														
87.295	46.241	4874	618.4(1710)	1.1711	24.272	3419											
87.295	0.390	1935	=663.8(599)	1.3058	24.634	2258	3.547	8010	2.598	0.02575	27.607	4.1864	7291	3.205	264.1	0.85	0.88
NOZZLE AE REGEN		44	37 5														
87.295	46.241	4920	651.6(1743)	1.1685	24.236	3434											
87.295	1.198	2545	=447.0(815)	1.2818	24.633	2566	2.890	7414	2.605	0.05564	27.607	1.9371	6956	6.411	252.0	0.85	0.88
NOZZLE PO REGEN		45	38 5														
87.295	46.241	4920	651.6(1743)	1.1685	24.236	3434											
87.295	0.390	1974	=650.6(612)	1.3041	24.634	2279	3.542	8072	2.605	0.02544	27.607	4.2365	7350	3.192	266.2	0.85	0.88
FICTIVE COMBUSTR		66	59 0														
62.219	301.426	5252	618.4(1869)	1.1750	24.694	3525											
62.219	0.390	1572	=1006.2(407)	1.3319	25.085	1903	4.738	9016	2.446	0.04164	27.607	2.5886	7995	5.834	289.6	0.85	1.00
FICTIVE NOZZLE		67	60 0														
87.295	24.013	4762	577.8(1679)	1.1669	24.255	3375											
87.295	1.603	3000	=275.5(984)	1.2642	24.629	2767	2.362	6534	2.643	0.05564	27.607	1.9371	6402	5.650	231.9	0.85	0.88

XABS	P=IB	P=OB	PDA	QUX	Q=IB	Q=OB	CANALL	P=IB/PSO	P=IB/PTO	P=OB/PSO	P=OB/PTO
6.981E=01	1.040E 00	0.000	=4.416E=01	0.000	0.000	0.000	2.470E=02	2.665E 00	1.391E=03	0.000	0.000
1.836E 01	1.040E 00	0.000	=3.463E 01	0.000	0.000	0.000	1.634E 02	2.665E 00	1.391E=03	0.000	0.000
3.070E 01	2.195E 00	0.000	=1.658E 02	0.000	0.000	0.000	5.053E 02	5.625E 00	2.935E=03	0.000	0.000
3.508E 01	3.896E 00	0.000	=3.631E 02	0.000	0.000	0.000	6.804E 02	9.985E 00	5.210E=03	0.000	0.000
3.520E 01	3.899E 00	5.756E 00	=4.295E 02	0.000	0.000	0.000	6.856E 02	9.992E 00	5.215E=03	1.475E 01	7.698E=03
3.520E 01	3.899E 00	5.724E 00	=4.296E 02	0.000	0.000	0.000	6.858E 02	9.992E 00	5.215E=03	1.467E 01	7.654E=03
3.555E 01	3.910E 00	3.835E 00	=4.366E 02	0.000	0.000	0.000	7.206E 02	1.002E 01	5.229E=03	9.827E 00	5.128E=03
3.587E 01	3.910E 00	2.100E 00	=4.509E 02	=1.702E 02	=1.782E 02	0.000	7.531E 02	1.002E 01	5.229E=03	5.381E 00	2.808E=03
3.606E 01	3.910E 00	2.881E 00	=4.609E 02	=1.802E 02	=1.802E 02	0.000	7.726E 02	1.002E 01	5.229E=03	7.382E 00	3.853E=03
3.648E 01	4.226E 00	4.596E 00	=4.798E 02	=1.846E 02	=1.846E 02	0.000	8.162E 02	1.083E 01	5.651E=03	1.178E 01	6.146E=03
3.701E 01	4.240E 00	6.760E 00	=5.035E 02	=2.058E 02	=1.904E 02	=1.536E 01	8.722E 02	1.087E 01	5.670E=03	1.732E 01	9.041E=03
3.733E 01	4.099E 00	8.062E 00	=5.152E 02	=2.146E 02	=1.940E 02	=2.058E 01	9.065E 02	1.050E 01	5.482E=03	2.066E 01	1.078E=02
3.803E 01	3.790E 00	1.328E 01	=5.282E 02	=2.342E 02	=2.025E 02	=3.175E 01	9.831E 02	9.712E 00	5.069E=03	3.403E 01	1.776E=02
3.835E 01	5.319E 00	1.565E 01	=5.262E 02	=2.434E 02	=2.066E 02	=3.678E 01	1.019E 03	1.363E 01	7.113E=03	4.010E 01	2.093E=02
3.875E 01	7.243E 00	1.539E 01	=5.262E 02	=2.552E 02	=2.122E 02	=4.306E 01	1.064E 03	1.856E 01	9.687E=03	3.945E 01	2.059E=02
3.882E 01	7.573E 00	1.535E 01	=5.262E 02	=2.573E 02	=2.132E 02	=4.414E 01	1.072E 03	1.941E 01	1.013E=02	3.934E 01	2.053E=02
3.901E 01	8.490E 00	1.564E 01	=5.256E 02	=2.632E 02	=2.161E 02	=4.711E 01	1.094E 03	2.176E 01	1.135E=02	4.007E 01	2.091E=02
3.933E 01	1.382E 01	1.611E 01	=5.308E 02	=2.733E 02	=2.212E 02	=5.204E 01	1.130E 03	3.542E 01	1.849E=02	4.129E 01	2.155E=02
3.950E 01	1.669E 01	1.346E 01	=5.379E 02	=2.788E 02	=2.241E 02	=5.466E 01	1.150E 03	4.276E 01	2.232E=02	3.450E 01	1.800E=02
3.982E 01	1.711E 01	8.525E 00	=5.574E 02	=2.893E 02	=2.298E 02	=5.945E 01	1.187E 03	4.386E 01	2.289E=02	2.185E 01	1.140E=02
4.000E 01	1.736E 01	8.431E 00	=5.704E 02	=2.954E 02	=2.333E 02	=6.213E 01	1.209E 03	4.448E 01	2.321E=02	2.161E 01	1.128E=02
4.040E 01	2.068E 01	8.225E 00	=6.007E 02	=3.096E 02	=2.413E 02	=6.830E 01	1.255E 03	5.299E 01	2.765E=02	2.108E 01	1.100E=02
4.041E 01	2.076E 01	8.219E 00	=6.013E 02	=3.100E 02	=2.415E 02	=6.846E 01	1.257E 03	5.320E 01	2.776E=02	2.106E 01	1.099E=02
4.131E 01	2.827E 01	7.752E 00	=6.884E 02	=3.574E 02	=2.618E 02	=9.562E 01	1.363E 03	7.243E 01	3.780E=02	1.987E 01	1.037E=02
4.138E 01	2.881E 01	7.719E 00	=6.955E 02	=3.619E 02	=2.634E 02	=9.852E 01	1.371E 03	7.382E 01	3.852E=02	1.976E 01	1.032E=02
4.150E 01	2.981E 01	7.888E 00	=7.092E 02	=3.706E 02	=2.664E 02	=1.042E 02	1.386E 03	7.640E 01	3.987E=02	2.021E 01	1.055E=02
4.246E 01	1.147E 01	9.233E 00	=7.606E 02	=4.542E 02	=2.916E 02	=1.627E 02	1.501E 03	2.941E 01	1.535E=02	2.366E 01	1.235E=02
4.410E 01	1.497E 01	1.153E 01	=7.680E 02	=6.290E 02	=3.345E 02	=2.945E 02	1.699E 03	3.836E 01	2.002E=02	2.954E 01	1.542E=02
4.431E 01	1.542E 01	1.132E 01	=7.706E 02	=6.524E 02	=3.398E 02	=3.126E 02	1.725E 03	3.951E 01	2.062E=02	2.902E 01	1.514E=02
4.480E 01	1.640E 01	1.085E 01	=7.786E 02	=7.033E 02	=3.519E 02	=3.514E 02	1.784E 03	4.219E 01	2.202E=02	2.781E 01	1.451E=02
4.481E 01	1.646E 01	1.084E 01	=7.789E 02	=7.047E 02	=3.522E 02	=3.525E 02	1.786E 03	4.218E 01	2.201E=02	2.777E 01	1.449E=02
4.626E 01	1.614E 01	9.442E 00	=7.909E 02	=8.380E 02	=3.872E 02	=4.508E 02	1.964E 03	4.137E 01	2.159E=02	2.419E 01	1.263E=02
4.731E 01	1.591E 01	8.428E 00	=7.905E 02	=9.278E 02	=4.125E 02	=5.153E 02	2.094E 03	4.078E 01	2.128E=02	2.160E 01	1.127E=02
4.734E 01	1.574E 01	8.400E 00	=7.909E 02	=9.303E 02	=4.132E 02	=5.171E 02	2.097E 03	4.033E 01	2.105E=02	2.153E 01	1.123E=02
4.811E 01	1.105E 01	9.599E 00	=7.756E 02	=9.941E 02	=4.318E 02	=5.623E 02	2.194E 03	2.832E 01	1.478E=02	2.460E 01	1.284E=02
4.879E 01	1.065E 01	1.065E 01	=7.434E 02	=1.047E 03	=4.481E 02	=5.986E 02	2.279E 03	2.730E 01	1.425E=02	2.730E 01	1.425E=02
4.932E 01	1.148E 01	1.148E 01	=7.128E 02	=1.085E 03	=4.608E 02	=6.245E 02	2.345E 03	2.942E 01	1.535E=02	2.942E 01	1.535E=02
5.073E 01	1.656E 01	1.656E 01	=6.092E 02	=1.185E 03	=4.946E 02	=6.900E 02	2.525E 03	4.243E 01	2.214E=02	4.243E 01	2.214E=02
5.283E 01	2.010E 01	2.010E 01	=4.074E 02	=1.354E 03	=5.448E 02	=8.092E 02	2.789E 03	5.151E 01	2.688E=02	5.151E 01	2.688E=02
5.333E 01	2.186E 01	2.186E 01	=3.529E 02	=1.404E 03	=5.567E 02	=8.470E 02	2.853E 03	5.603E 01	2.924E=02	5.603E 01	2.924E=02
5.407E 01	2.355E 01	2.355E 01	=2.661E 02	=1.466E 03	=5.743E 02	=9.122E 02	2.947E 03	6.036E 01	3.150E=02	6.036E 01	3.150E=02
5.408E 01	2.358E 01	2.358E 01	=2.649E 02	=1.468E 03	=5.745E 02	=9.131E 02	2.948E 03	6.042E 01	3.153E=02	6.042E 01	3.153E=02
5.484E 01	2.531E 01	2.531E 01	=1.702E 02	=1.579E 03	=5.926E 02	=9.865E 02	3.046E 03	6.486E 01	3.385E=02	6.486E 01	3.385E=02
5.576E 01	2.627E 01	2.627E 01	=5.103E 01	=1.699E 03	=6.144E 02	=1.084E 03	3.164E 03	6.732E 01	3.513E=02	6.732E 01	3.513E=02
5.625E 01	2.679E 01	2.679E 01	3.953E 02	=1.766E 03	=6.255E 02	=1.140E 03	3.208E 03	6.864E 01	3.582E=02	6.864E 01	3.582E=02
5.626E 01	2.680E 01	2.680E 01	3.971E 02	=1.767E 03	=6.257E 02	=1.142E 03	3.209E 03	6.867E 01	3.584E=02	6.867E 01	3.584E=02
5.632E 01	2.415E 01	2.685E 01	4.047E 02	=1.775E 03	=6.268E 02	=1.148E 03	3.216E 03	6.889E 01	3.590E=02	6.882E 01	3.591E=02
5.646E 01	2.415E 01	2.700E 01	4.223E 02	=1.794E 03	=6.297E 02	=1.164E 03	3.234E 03	6.889E 01	3.630E=02	6.919E 01	3.611E=02
5.654E 01	2.708E 01	2.708E 01	4.331E 02	=1.805E 03	=6.314E 02	=1.174E 03	3.245E 03	6.940E 01	3.622E=02	6.940E 01	3.622E=02
5.682E 01	2.737E 01	2.737E 01	4.687E 02	=1.843E 03	=6.372E 02	=1.206E 03	3.280E 03	7.015E 01	3.661E=02	7.015E 01	3.661E=02
5.704E 0	2.756E 01	2.756E 01	4.954E 02	=1.873E 03	=6.419E 02	=1.232E 03	3.309E 03	7.063E 01	3.686E=02	7.063E 01	3.686E=02
5.777E 01	2.815E 01	2.815E 01	5.709E 02	=1.969E 03	=6.569E 02	=1.312E 03	3.402E 03	7.215E 01	3.765E=02	7.215E 01	3.765E=02
5.879E 01	2.839E 01	2.839E 01	6.364E 02	=2.097E 03	=6.780E 02	=1.419E 03	3.532E 03	7.274E 01	3.796E=02	7.274E 01	3.796E=02
6.080E 01	2.775E 01	2.775E 01	6.430E 02	=2.368E 03	=7.207E 02	=1.618E 03	3.790E 03	7.111E 01	3.711E=02	7.111E 01	3.711E=02
6.222E 01	2.672E 01	2.672E 01	6.430E 02	=2.504E 03	=7.555E 02	=1.748E 03	3.972E 03	6.847E 01	3.573E=02	6.847E 01	3.573E=02
6.468E 01	2.158E 01	2.158E 01	6.430E 02	=2.805E 03	=8.330E 02	=1.972E 03	4.289E 03	5.531E 01	2.886E=02	5.531E 01	2.886E=02

READING = 0064 BLOCK = 109 TIME = 202.011 MACH 6.0 PT = 747.749 TT = 2986.3 PAGE 5

XABS	P-IB	P-OB	PDA	QDX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PIO	P-OB/PSO	P-OB/PIO
6.506E 01	2.006E 01	2.080E 01	6.430E 02	-2.854E 03	-8.468E 02	-2.007E 03	4.337E 03	5.141E 01	2.683E-02	5.550E 01	2.782E-02
6.510E 01	2.006E 01	2.072E 01	6.430E 02	-2.859E 03	-8.483E 02	-2.010E 03	4.342E 03	5.141E 01	2.683E-02	5.309E 01	2.771E-02
6.530E 01	1.892E 01	2.030E 01	6.430E 02	-2.883E 03	-8.556E 02	-2.028E 03	4.368E 03	4.847E 01	2.530E-02	5.202E 01	2.715E-02
6.696E 01	9.400E 00	8.360E 00	8.017E 02	-3.053E 03	-9.059E 02	-2.147E 03	4.583E 03	2.409E 01	1.257E-02	2.142E 01	1.118E-02
6.763E 01	7.064E 00	8.070E 00	9.681E 02	-3.108E 03	-9.211E 02	-2.187E 03	4.665E 03	1.810E 01	9.447E-03	2.068E 01	1.079E-02
6.840E 01	4.380E 00	6.574E 00	1.147E 03	-3.171E 03	-9.354E 02	-2.236E 03	4.760E 03	1.122E 01	5.858E-03	1.685E 01	8.792E-03
6.912E 01	3.630E 00	5.175E 00	1.272E 03	-3.233E 03	-9.464E 02	-2.286E 03	4.848E 03	9.303E 00	4.855E-03	1.326E 01	6.921E-03
6.973E 01	2.995E 00	4.481E 00	1.359E 03	-3.284E 03	-9.542E 02	-2.330E 03	4.922E 03	7.675E 00	4.005E-03	1.148E 01	5.993E-03
7.068E 01	2.351E 00	3.400E 00	1.463E 03	-3.350E 03	-9.645E 02	-2.386E 03	5.036E 03	6.025E 00	3.145E-03	8.713E 00	4.547E-03
7.111E 01	2.060E 00	3.122E 00	1.501E 03	-3.375E 03	-9.684E 02	-2.407E 03	5.088E 03	5.279E 00	2.755E-03	8.002E 00	4.176E-03
7.264E 01	2.017E 00	2.135E 00	1.611E 03	-3.450E 03	-9.806E 02	-2.470E 03	5.273E 03	5.169E 00	2.698E-03	5.471E 00	2.855E-03
7.354E 01	1.992E 00	5.600E-01	1.673E 03	-3.493E 03	-9.867E 02	-2.506E 03	5.372E 03	5.105E 00	2.664E-03	1.435E 00	7.489E-04
7.354E 01	1.992E 00	5.530E-01	1.674E 03	-3.493E 03	-9.867E 02	-2.506E 03	5.372E 03	5.105E 00	2.664E-03	1.417E 00	7.395E-04
7.487E 01	1.955E 00	0.000	1.716E 03	-3.565E 03	-9.946E 02	-2.570E 03	5.424E 03	5.010E 00	2.615E-03	0.000	0.000
7.772E 01	1.940E 00	0.000	1.794E 03	-3.578E 03	-1.008E 03	-2.570E 03	5.523E 03	4.971E 00	2.594E-03	0.000	0.000
8.162E 01	1.585E 00	0.000	1.869E 03	-3.592E 03	-1.022E 03	-2.570E 03	5.628E 03	4.062E 00	2.120E-03	0.000	0.000
8.443E 01	1.275E 00	0.000	1.901E 03	-3.604E 03	-1.034E 03	-2.570E 03	5.682E 03	3.267E 00	1.705E-03	0.000	0.000
8.729E 01	1.890E 00	0.000	1.939E 03	-3.625E 03	-1.055E 03	-2.570E 03	5.705E 03	4.843E 00	2.528E-03	0.000	0.000
8.729E 01	1.891E 00	0.000	1.939E 03	-3.625E 03	-1.055E 03	-2.570E 03	5.705E 03	4.847E 00	2.529E-03	0.000	0.000

READING = 0064 BLOCK = 109 TIME = 202.011 MACH 6.0 PT = 747.749 TT = 2986.3

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.174E 02	1.174E 02	2.199E-03	4.339E-02
4.041E 01	1.773E-01	1.176E 02	2.200E-03	4.344E-02
4.131E 01	1.612E 01	1.337E 02	2.312E-03	4.645E-02
4.138E 01	1.171E 00	1.349E 02	2.321E-03	4.666E-02
4.150E 01	2.184E 00	1.371E 02	2.337E-03	4.711E-02
4.246E 01	1.729E 01	1.543E 02	2.396E-03	4.827E-02
4.410E 01	2.905E 01	1.834E 02	2.415E-03	4.703E-02
4.431E 01	3.674E 00	1.871E 02	2.420E-03	4.708E-02
4.480E 01	8.540E 00	1.956E 02	2.436E-03	4.722E-02
4.481E 01	2.422E-01	1.959E 02	2.436E-03	4.723E-02
4.626E 01	2.455E 01	2.204E 02	2.466E-03	4.511E-02
4.731E 01	1.680E 01	2.372E 02	2.475E-03	4.215E-02
4.734E 01	4.322E-01	2.376E 02	2.476E-03	4.211E-02
4.811E 01	1.153E 01	2.492E 02	2.468E-03	3.909E-02
4.879E 01	9.441E 00	2.586E 02	2.441E-03	3.539E-02
4.932E 01	6.857E 00	2.655E 02	2.413E-03	3.259E-02
5.073E 01	1.635E 01	2.818E 02	2.303E-03	2.613E-02
5.283E 01	2.007E 01	3.019E 02	2.040E-03	1.836E-02
5.333E 01	4.109E 00	3.060E 02	1.955E-03	1.673E-02
5.407E 01	6.191E 00	3.122E 02	2.981E-03	3.702E-02
5.408E 01	8.259E-02	3.123E 02	3.137E-03	3.484E-02
5.484E 01	6.128E 00	3.184E 02	3.131E-03	3.522E-02
5.576E 01	6.833E 00	3.252E 02	3.201E-03	3.390E-02
5.625E 01	2.236E 00	3.275E 02	3.370E-03	3.162E-02
5.626E 01	5.804E-02	3.275E 02	3.340E-03	3.158E-02
5.632E 01	3.251E-01	3.278E 02	3.321E-03	3.154E-02
5.646E 01	8.329E-01	3.287E 02	3.332E-03	3.136E-02
5.654E 01	4.750E-01	3.292E 02	3.387E-03	3.116E-02
5.682E 01	1.628E 00	3.308E 02	3.337E-03	3.103E-02
5.704E 01	1.303E 00	3.321E 02	3.346E-03	3.177E-02
5.777E 01	4.127E 00	3.362E 02	3.348E-03	3.169E-02
5.879E 01	5.742E 00	3.420E 02	3.364E-03	3.154E-02
6.080E 01	1.180E 01	3.538E 02	3.361E-03	3.192E-02
6.222E 01	8.979E 00	3.627E 02	3.334E-03	3.254E-02
6.329E 01	2.449E 00	3.816E 02	3.309E-03	2.838E-02
6.468E 01	1.729E 01	3.989E 02	3.346E-03	3.179E-02
6.506E 01	2.841E 00	4.017E 02	3.334E-03	3.122E-02
6.510E 01	3.048E-01	4.020E 02	3.334E-03	3.120E-02
6.530E 01	1.531E 00	4.035E 02	3.328E-03	3.078E-02
6.696E 01	1.233E 01	4.159E 02	3.210E-03	2.058E-02
6.763E 01	4.317E 00	4.202E 02	3.188E-03	1.841E-02
6.840E 01	4.546E 00	4.247E 02	3.140E-03	1.483E-02
6.912E 01	3.727E 00	4.285E 02	3.105E-03	1.273E-02
6.973E 01	2.851E 00	4.313E 02	3.084E-03	1.133E-02
7.068E 01	3.942E 00	4.353E 02	3.050E-03	9.370E-03
7.111E 01	1.617E 00	4.369E 02	3.035E-03	8.676E-03
7.264E 01	5.218E 00	4.421E 02	3.002E-03	7.344E-03
7.354E 01	2.291E 00	4.444E 02	2.933E-03	5.065E-03
7.354E 01	3.171E-03	4.444E 02	2.932E-03	5.054E-03
7.487E 01	1.166E 00	4.455E 02	2.983E-03	6.991E-03
7.772E 01	2.487E 00	4.480E 02	2.967E-03	6.914E-03
8.162E 01	2.483E 00	4.505E 02	2.921E-03	5.892E-03
8.443E 01	1.128E 00	4.516E 02	2.879E-03	4.962E-03
8.729E 01	4.948E-01	4.521E 02	2.919E-03	6.670E-03
8.729E 01	0.000	4.521E 02	2.919E-03	6.674E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1351,	(LBF)
MEASURED THRUST	1557,	(LBF)
CALCULATED SPECIFIC IMPULSE	2006,	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2313,	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.5377	
MEASURED THRUST COEFFICIENT	0.6197	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	6446,	(LBF)
NET THRUST	1394,	(LBF)
SPECIFIC IMPULSE	2071,	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.5550	

MOMENTUM AND FORCES

INLET FRICTION DRAG	117.4	(LBF)
INLET MOMENTUM CHANGE	-718.1	(LBF)
COMBUSTOR FRICTION DRAG	245.3	(LBF)
COMBUSTOR STRUT DRAG	75.60	(LBF)
COMBUSTOR MOMENTUM CHANGE	881,	(LBF)
NOZZLE FRICTION DRAG	70.56	(LBF)
NOZZLE STRUT DRAG	37.28	(LBF)
NOZZLE MOMENTUM CHANGE	1188,	(LBF)
NOZZLE PRESSURE INTEGRAL	1296,	(LBF)
EXTERNAL FRICTION DRAG	55.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1229,	(LBF)
TOTAL EXTERNAL DRAG	-1284,	(LBF)
TOTAL STRUT DRAG	112.88	(LBF)
CAVITY FORCE	-1401,	(LBF)
CALCULATED LOAD CELL FORCE	-1333,	(LBF)
MEASURED LOAD CELL FORCE	-1127,	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	-124.6, 0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3186	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.203	(IN)
NOZZLE SHROUD TRAILING EDGE	73.543	(IN)
NOZZLE PLUG TRAILING EDGE	87.295	(IN)
STRUT LEADING EDGE	56.459	(IN)
STRUT TRAILING EDGE	65.059	(IN)
COMBUSTOR EXIT	62.219	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9854	
ADDITIVE DRAG COEFFICIENT	0.0005	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1637	
DELTA PT2	0.1183	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4031	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1660	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8951	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9047	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9452	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8940	
ENTHALPY AT P0 - SUPERSONIC	-5.29	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	30.49	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0250	
EQUIVALENCE RATIO	0.851	
COMBUSTOR EFFICIENCY	0.879	
TOTAL PRESSURE RATIO	0.1534	
COMBUSTOR EFFECTIVENESS	0.8078	
INJECTOR DISCHARGE COEFFICIENTS	0.6551,	0.6342,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9266
NOZZLE COEFFICIENT - CI	0.8515
PROCESS EFFICIENCY	0.8423
KINETIC ENERGY EFFICIENCY	0.8350

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.304	
1C	44.300	
2A	48.779	
2C	46.250	
3A	54.069	E
3B	56.254	E
4	44.804	

Reading 64

t = 239.81 sec.

READING = 0064 BLOCK = 151 TIME = 259.611 MACH 6.0 PI = 747.499 TI = 2977.6

1-29-75

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	M	GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	W	A/AC	MOMIP	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	747.499	2978	664.1(790)	1.2944	28.852	2577											
0.000	0.389	402	32.6(97)	1.3987	28.851	984	5.999	5904	1.826	0.10665	26.942	0.9863	5042	9.785	187.2		
SPIKE TIP NS		2	0 4														
0.600	18.100	2978	664.1(790)	1.2943	28.851	2577											
0.600	16.348	2909	643.4(770)	1.2964	28.851	2549	0.399	1017	2.082	0.10665	26.942	0.9863	4981	1.085	184.9		
WIND TUNNEL		3	0 0														
0.000	747.499	2978	664.1(790)	1.2944	28.852	2577											
0.000	0.380	399	33.2(96)	1.3987	28.851	981	6.020	5907	1.826	0.10506	26.540	0.9863	4969	9.644	187.2		
SPIKE TIP NS		4	0 0														
0.600	18.100	2978	664.1(790)	1.2943	28.851	2577											
0.600	16.407	2912	644.1(770)	1.2964	28.851	2550	0.392	999	2.082	0.10506	26.540	0.9863	4969	1.630	187.2		
INLET THROAT		5	0 3														
40.400	296.104	2922	647.1(773)	1.2961	28.851	2555											
40.400	15.575	1420	221.6(351)	1.3534	28.851	1820	2.535	4614	1.884	0.94463	26.942	0.1114	4308	67.740	159.9		
INLET UPWRSK		6	0 3														
40.400	296.104	2922	647.1(773)	1.2961	28.851	2555											
40.400	13.380	1365	207.1(336)	1.3567	28.851	1786	2.627	4693	1.884	0.85875	26.942	0.1225	4349	62.627	161.4		
INLET DNWRSK		7	0 4														
40.400	123.282	2922	647.1(773)	1.2961	28.851	2555											
40.400	105.933	2822	617.2(744)	1.2993	28.851	2513	0.487	1225	1.944	0.85875	26.942	0.1225	4349	16.350	161.4		
COMBUSTOR	0	8	1 2														
40.410	295.297	2921	647.1(773)	1.2961	28.851	2554											
40.410	15.596	1422	222.0(351)	1.3533	28.851	1821	2.533	4612	1.884	0.94451	26.942	0.1114	4307	67.698	159.9		
COMBUSTOR	0	9	2 21														
41.300	172.278	2869	657.5(821)	1.3000	26.532	2644											
41.300	20.165	1704	296.7(463)	1.3411	26.532	2069	2.053	4249	2.054	0.95292	27.127	0.1111	4157	62.924	153.2	0.23	0.07
COMBUSTOR	0	10	3 21														
41.310	184.167	2798	657.4(800)	1.3032	26.457	2618											
41.310	20.233	1629	297.4(442)	1.3454	26.457	2029	2.092	4244	2.042	0.95271	27.127	0.1112	4155	62.841	153.2	0.23	0.01
COMBUSTOR	0	11	4 21														
41.375	183.014	2786	657.1(796)	1.3038	26.446	2613											
41.375	20.671	1633	301.9(443)	1.3453	26.445	2032	2.075	4216	2.041	0.95415	27.127	0.1110	4142	62.511	152.7	0.23	0.00
COMBUSTOR	0	12	5 2														
41.500	176.502	2787	656.4(796)	1.3037	26.449	2613											
41.500	22.985	1694	318.9(461)	1.3424	26.449	2067	1.988	4109	2.044	0.95438	27.127	0.1110	4118	60.946	151.6	0.23	0.00
COMBUSTOR	0	13	6 5														
42.460	119.724	3153	649.6(907)	1.2865	26.865	2740											
42.460	36.905	2435	418.3(680)	1.3103	26.066	2430	1.400	3402	2.102	0.94500	27.127	0.1121	3985	49.962	146.9	0.23	0.35
COMBUSTOR	0	14	7 4														
44.095	106.184	3271	635.3(943)	1.2803	27.044	2775											
44.095	66.607	2949	528.8(839)	1.2911	27.045	2645	0.873	2308	2.117	0.91252	27.127	0.1161	3926	32.734	144.7	0.23	0.50
COMBUSTOR	0	15	8 3														
44.310	106.163	3245	633.3(935)	1.2815	27.022	2766											
44.310	67.926	2938	531.6(836)	1.2917	27.023	2642	0.853	2253	2.115	0.91094	27.127	0.1163	3922	31.895	144.6	0.23	0.48
COMBUSTOR	0	16	9 3														
44.800	106.064	3162	628.4(909)	1.2852	26.946	2738											
44.800	70.929	2889	538.7(822)	1.2942	26.947	2627	0.807	2119	2.109	0.90739	27.127	0.1167	3908	29.887	144.0	0.23	0.42
COMBUSTOR	0	17	10 2														
44.810	106.052	3162	628.3(909)	1.2852	26.945	2738											
44.810	70.911	2888	538.5(822)	1.2942	26.946	2626	0.807	2120	2.109	0.90739	27.127	0.1167	3907	29.889	144.0	0.23	0.42
COMBUSTOR	0	18	11 17														
46.250	100.136	2538	647.5(842)	1.3168	22.594	2724											
46.250	68.303	2313	565.2(760)	1.3244	22.594	2608	0.778	2030	2.142	0.86855	27.547	0.1238	3904	27.394	141.7	0.76	0.03

READING = 0064 BLOCK = 151 TIME = 239.811 MACH 6.0 PT = 747.499 TT = 2977.6

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	A	A/AC	NUMIN	Q	INAC	PHI	ETAC
COMBUSTOR	0	19	12 2														
46.260	100.096	2539	647.4(842)	1.3168	22.595	2724											
46.260	66.285	2314	565.1(761)	1.3244	22.595	2608	0.778	2030	2.342	0.86801	27.547	0.1239	3905	27.377	141.7	0.76	0.03
COMBUSTOR	0	20	13 4														
47.310	96.723	2737	636.6(911)	1.3074	22.594	2806											
47.310	66.384	2504	549.9(826)	1.3152	22.594	2692	0.774	2083	2.366	0.80766	27.547	0.1332	4048	26.148	146.9	0.76	0.10
COMBUSTOR	0	21	14 2														
47.335	96.690	2740	636.3(912)	1.3073	22.597	2807											
47.335	66.412	2506	549.7(827)	1.3150	22.597	2693	0.773	2082	2.367	0.80675	27.547	0.1333	4050	26.103	147.0	0.76	0.10
COMBUSTOR	0	22	15 4														
48.110	92.901	2991	628.7(1001)	1.2955	22.841	2904											
48.110	62.355	2726	529.6(903)	1.3042	22.842	2783	0.800	2228	2.493	0.75257	27.547	0.1429	4190	26.053	152.1	0.76	0.19
COMBUSTOR	0	23	16 8														
48.775	86.022	2709	650.9(1038)	1.3110	19.541	3006											
48.775	49.836	2376	509.9(898)	1.3223	19.541	2827	0.939	2656	2.663	0.70443	28.002	0.1552	4293	29.075	153.3	1.34	0.10
COMBUSTOR	0	24	17 2														
48.785	85.955	2713	650.6(1040)	1.3108	19.544	3008											
48.785	49.717	2379	509.3(899)	1.3222	19.544	2828	0.941	2661	2.663	0.70351	28.002	0.1554	4295	29.096	153.4	1.34	0.10
COMBUSTOR	0	25	18 4														
49.315	82.649	2891	646.5(1112)	1.3026	19.688	3084											
49.315	43.400	2483	472.1(939)	1.3163	19.689	2873	1.028	2954	2.687	0.65795	28.002	0.1662	4418	30.205	157.8	1.34	0.14
COMBUSTOR	0	26	19 5														
50.725	76.029	3220	635.7(1246)	1.2870	19.971	3212											
50.725	33.300	2667	394.5(1009)	1.3056	19.972	2944	1.180	3474	2.727	0.56075	28.002	0.1950	4667	30.477	167.4	1.34	0.22
COMBUSTOR	0	27	20 4														
52.825	70.202	3467	621.7(1348)	1.2744	20.202	3298											
52.825	23.325	2711	280.1(1022)	1.3005	20.207	2945	1.387	4085	2.753	0.45961	28.002	0.2379	4977	29.178	177.7	1.34	0.28
COMBUSTOR	0	28	21 3														
53.325	69.224	3499	618.6(1361)	1.2727	20.235	3308											
53.325	21.650	2701	266.2(1017)	1.3003	20.240	2937	1.430	4199	2.757	0.44082	28.002	0.2480	5030	28.766	179.6	1.34	0.29
COMBUSTOR	0	29	22 4														
54.075	66.983	3579	614.2(1394)	1.2684	20.312	3333											
54.075	20.191	2747	244.7(1035)	1.2975	20.319	2953	1.456	4300	2.766	0.41853	28.002	0.2631	5103	27.767	182.2	1.34	0.31
COMBUSTOR	0	30	23 4														
54.835	65.219	3640	609.9(1419)	1.2649	20.374	3352											
54.835	18.712	2769	221.4(1043)	1.2958	20.382	2959	1.490	4409	2.772	0.39295	28.002	0.2782	5171	26.924	184.7	1.34	0.33
COMBUSTOR	0	31	24 4														
55.760	63.427	3699	604.9(1444)	1.2615	20.434	3369											
55.760	17.100	2781	193.9(1046)	1.2945	20.444	2959	1.533	4535	2.778	0.36895	28.002	0.2963	5245	26.002	187.3	1.34	0.34
COMBUSTOR	0	32	25 5														
56.260	50.510	4153	602.4(1635)	1.2318	20.851	3493											
56.260	16.230	3314	199.6(1263)	1.2685	20.890	3163	1.419	4490	2.827	0.29723	28.002	0.3678	5436	20.738	194.1	1.34	0.45
COMBUSTOR	0	33	26 5														
56.315	56.543	3831	602.1(1499)	1.2535	20.556	3408											
56.315	12.696	2780	127.8(1043)	1.2926	20.572	2947	1.653	4872	2.798	0.29629	28.002	0.3690	5440	22.434	194.3	1.34	0.37
COMBUSTOR	0	34	27 3														
56.455	56.392	3838	601.5(1502)	1.2530	20.565	3410											
56.455	12.576	2782	124.4(1043)	1.2924	20.581	2947	1.658	4886	2.798	0.29416	28.002	0.3717	5450	22.337	194.6	1.34	0.38
COMBUSTOR	0	35	28 6														
56.535	51.432	4138	601.1(1628)	1.2330	20.859	3489											
56.535	15.750	3265	184.7(1243)	1.2706	20.877	3143	1.452	4565	2.824	0.29746	28.002	0.3675	5455	21.101	194.8	1.34	0.45
COMBUSTOR	0	36	29 3														
56.815	52.135	4123	599.8(1622)	1.2341	20.828	3485											
56.815	15.262	3220	171.0(1223)	1.2726	20.865	3125	1.462	4632	2.822	0.29647	28.002	0.3688	5473	21.343	195.5	1.34	0.45
COMBUSTOR	0	37	30 4														
57.041	53.832	4049	598.8(1591)	1.2394	20.761	3467											
57.041	14.276	3083	147.6(1166)	1.2788	20.791	3070	1.547	4751	2.815	0.29602	28.002	0.3693	5486	21.859	195.9	1.34	0.43

READING = 0064 BLOCK = 151 TIME = 259.811 MACH 6.0 PT = 747.499 TT = 2977.0

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	R	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 5														
57.765	61.414	5700	595.6(1468)	1.2578	20.506	3386											
57.765	11.115	2588	74.2(963)	1.3001	20.519	2855	1.769	5108	2.784	0.29132	28.002	0.3753	5514	23.126	196.9	1.34	0.36
COMBUSTOR	0	39	32 7														
58.785	102.765	3134	591.6(1209)	1.2899	19.982	3172											
58.785	0.337	1598	=44.9(577)	1.3471	19.983	2314	2.439	5644	2.684	0.28947	28.002	0.3777	5565	25.590	197.3	1.34	0.22
COMBUSTOR	0	40	33 6														
60.795	49.876	4428	584.4(1750)	1.2047	21.146	3549											
60.795	18.637	3702	209.4(1425)	1.2463	21.225	3287	1.318	4332	2.839	0.29954	28.002	0.3650	5512	20.165	196.9	1.34	0.54
COMBUSTOR	0	41	34 4														
62.215	55.047	4264	579.0(1680)	1.2235	21.000	3514											
62.215	17.006	3421	166.6(1306)	1.2619	21.054	3193	1.423	4543	2.825	0.30706	28.002	0.3553	5502	21.720	196.5	1.34	0.50
COMBUSTOR	0	42	35 5														
64.679	46.682	4549	568.7(1801)	1.1972	21.294	3566											
64.679	21.101	3978	253.6(1542)	1.2277	21.394	3369	1.179	3971	2.848	0.29163	28.002	0.3749	5482	17.996	195.8	1.34	0.58
COMBUSTOR	0	43	36 4														
65.055	42.908	4612	567.0(1828)	1.1895	21.358	3573											
65.055	21.588	4161	286.3(1609)	1.2154	21.469	3410	1.095	3734	2.859	0.27112	28.002	0.4032	5479	15.732	195.7	1.34	0.61
COMBUSTOR REGEN		44	37 4														
65.055	42.908	4663	602.4(1852)	1.1860	21.335	3590											
65.055	23.341	4242	350.5(1659)	1.2079	21.447	3446	1.030	3550	2.866	0.27112	28.002	0.4032	5500	14.957	196.4	1.34	0.61
NOZZLE AE		45	38 5														
87.291	42.908	4612	567.0(1816)	1.1895	21.358	3573											
87.291	1.244	2291	=544.9(820)	1.2969	21.540	2619	2.848	7459	2.859	0.05644	28.002	1.9371	7109	6.542	253.9	1.34	0.61
NOZZLE PO		46	39 5														
87.291	42.908	4612	567.0(1816)	1.1895	21.358	3573											
87.291	0.389	1742	=760.1(605)	1.3207	21.541	2304	3.537	8149	2.859	0.02536	28.002	4.3112	7522	3.211	268.6	1.34	0.61
NOZZLE AE REGEN		47	40 5														
87.291	42.908	4663	602.4(1852)	1.1860	21.335	3590											
87.291	1.264	2343	=525.8(841)	1.2949	21.540	2646	2.836	7507	2.866	0.05644	28.002	1.9371	7160	6.584	255.7	1.34	0.61
NOZZLE PO REGEN		48	41 5														
87.291	42.908	4663	602.4(1852)	1.1860	21.335	3590											
87.291	0.389	1777	=746.7(619)	1.3190	21.541	2326	3.533	8216	2.866	0.02506	28.002	4.3624	7585	3.200	270.9	1.34	0.61
FICTIVE COMBUSTR		67	60 0														
55.055	296.104	5245	567.0(2103)	1.1879	21.945	3757											
55.055	0.389	1290	=1202.7(431)	1.3393	22.163	1968	4.761	9410	2.690	0.04069	28.002	2.6868	8458	5.951	302.0	1.34	1.00
FICTIVE NOZZLE		68	61 0														
87.291	27.669	4550	542.3(1800)	1.1867	21.350	3546											
87.291	1.537	2620	=410.1(954)	1.2849	21.540	2766	2.476	6903	2.894	0.05644	28.002	1.9371	6771	6.055	241.8	1.34	0.61

XABB	P-IB	P-OB	PDA	QDX	Q-IB	Q-OB	CANALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.045E 00	0.000	-4.410E-01	0.000	0.000	0.000	2.470E-02	2.688E 00	1.398E-03	0.000	0.000
1.836E 01	1.045E 00	0.000	-5.480E 01	0.000	0.000	0.000	1.634E 02	2.688E 00	1.398E-03	0.000	0.000
3.070E 01	2.205E 00	0.000	-1.665E 02	0.000	0.000	0.000	5.053E 02	5.671E 00	2.950E-03	0.000	0.000
3.508E 01	3.884E 00	0.000	-3.638E 02	0.000	0.000	0.000	6.804E 02	9.989E 00	5.196E-03	0.000	0.000
3.519E 01	3.856E 00	5.738E 00	-4.297E 02	0.000	0.000	0.000	6.854E 02	9.919E 00	5.159E-03	1.476E 01	7.676E-03
3.520E 01	3.855E 00	5.703E 00	-4.297E 02	0.000	0.000	0.000	6.857E 02	9.915E 00	5.157E-03	1.467E 01	7.629E-03
3.555E 01	3.770E 00	3.658E 00	-4.366E 02	0.000	0.000	0.000	7.209E 02	9.697E 00	5.043E-03	9.409E 00	4.894E-03
3.586E 01	3.832E 00	1.825E 00	-4.508E 02	-2.650E 02	-2.658E 02	0.000	7.529E 02	9.856E 00	5.126E-03	4.694E 00	2.441E-03
3.606E 01	3.870E 00	2.656E 00	-4.613E 02	-2.688E 02	-2.688E 02	0.000	7.729E 02	9.954E 00	5.177E-03	6.830E 00	3.553E-03
3.648E 01	4.218E 00	4.443E 00	-4.808E 02	-2.754E 02	-2.758E 02	0.000	8.164E 02	1.085E 01	5.643E-03	1.145E 01	5.943E-03
3.701E 01	4.210E 00	6.698E 00	-5.048E 02	-3.002E 02	-2.840E 02	-1.614E 01	8.726E 02	1.083E 01	5.652E-03	1.723E 01	8.960E-03
3.732E 01	4.079E 00	8.057E 00	-5.162E 02	-3.109E 02	-2.894E 02	-2.155E 01	9.063E 02	1.049E 01	5.457E-03	2.067E 01	1.075E-02
3.803E 01	3.785E 00	1.329E 01	-5.292E 02	-3.353E 02	-3.020E 02	-3.633E 01	9.834E 02	9.735E 00	5.064E-03	3.419E 01	1.778E-02
3.834E 01	5.293E 00	1.564E 01	-5.271E 02	-3.470E 02	-3.085E 02	-3.853E 01	1.018E 03	1.362E 01	7.081E-03	4.022E 01	2.092E-02
3.875E 01	7.234E 00	1.526E 01	-5.273E 02	-3.637E 02	-3.186E 02	-4.517E 01	1.064E 03	1.861E 01	9.678E-03	3.925E 01	2.042E-02
3.881E 01	7.545E 00	1.520E 01	-5.274E 02	-3.666E 02	-3.204E 02	-4.623E 01	1.072E 03	1.941E 01	1.009E-02	3.910E 01	2.033E-02
3.901E 01	8.480E 00	1.557E 01	-5.268E 02	-3.756E 02	-3.262E 02	-4.940E 01	1.094E 03	2.181E 01	1.134E-02	4.004E 01	2.083E-02
3.932E 01	1.371E 01	1.616E 01	-5.318E 02	-3.912E 02	-3.367E 02	-5.450E 01	1.130E 03	3.525E 01	1.833E-02	4.157E 01	2.162E-02
3.950E 01	1.661E 01	1.231E 01	-5.395E 02	-4.005E 02	-3.432E 02	-5.730E 01	1.150E 03	4.273E 01	2.222E-02	3.168E 01	1.647E-02
3.981E 01	1.723E 01	5.400E 00	-5.628E 02	-4.184E 02	-3.562E 02	-6.225E 01	1.187E 03	4.433E 01	2.306E-02	1.389E 01	7.224E-03
4.000E 01	1.760E 01	5.196E 00	-5.798E 02	-4.297E 02	-3.646E 02	-6.511E 01	1.209E 03	4.527E 01	2.355E-02	1.336E 01	6.951E-03
4.040E 01	2.344E 01	4.755E 00	-6.221E 02	-4.561E 02	-3.840E 02	-7.215E 01	1.256E 03	6.088E 01	3.135E-02	1.223E 01	6.362E-03
4.041E 01	2.358E 01	4.744E 00	-6.231E 02	-4.568E 02	-3.845E 02	-7.235E 01	1.257E 03	6.066E 01	3.155E-02	1.220E 01	6.347E-03
4.130E 01	3.657E 01	3.764E 00	-7.564E 02	-5.517E 02	-4.324E 02	-1.192E 02	1.362E 03	9.405E 01	4.892E-02	9.681E 00	5.035E-03
4.131E 01	3.671E 01	3.753E 00	-7.581E 02	-5.531E 02	-4.330E 02	-1.201E 02	1.363E 03	9.443E 01	4.911E-02	9.653E 00	5.021E-03
4.137E 01	3.766E 01	3.681E 00	-7.695E 02	-5.626E 02	-4.368E 02	-1.258E 02	1.371E 03	9.687E 01	5.038E-02	9.469E 00	4.925E-03
4.150E 01	3.949E 01	6.483E 00	-7.913E 02	-5.818E 02	-4.441E 02	-1.376E 02	1.386E 03	1.016E 02	5.283E-02	1.666E 01	8.673E-03
4.246E 01	4.984E 01	2.797E 01	-9.082E 02	-7.652E 02	-5.072E 02	-2.579E 02	1.501E 03	1.282E 02	6.667E-02	7.195E 01	3.742E-02
4.409E 01	6.865E 01	6.457E 01	-9.443E 02	-1.154E 03	-6.459E 02	-5.098E 02	1.699E 03	1.766E 02	9.184E-02	1.661E 02	8.638E-02
4.431E 01	7.112E 01	6.473E 01	-9.456E 02	-1.209E 03	-6.647E 02	-5.438E 02	1.725E 03	1.829E 02	9.515E-02	1.665E 02	8.659E-02
4.480E 01	7.676E 01	6.510E 01	-9.549E 02	-1.340E 03	-7.146E 02	-6.251E 02	1.785E 03	1.974E 02	1.027E-01	1.674E 02	8.708E-02
4.481E 01	7.672E 01	6.510E 01	-9.552E 02	-1.342E 03	-7.156E 02	-6.268E 02	1.786E 03	1.973E 02	1.026E-01	1.675E 02	8.709E-02
4.625E 01	7.042E 01	6.618E 01	-8.740E 02	-1.748E 03	-8.610E 02	-8.868E 02	1.963E 03	1.811E 02	9.421E-02	1.702E 02	8.854E-02
4.626E 01	7.038E 01	6.619E 01	-8.732E 02	-1.751E 03	-8.620E 02	-8.887E 02	1.964E 03	1.810E 02	9.415E-02	1.703E 02	8.855E-02
4.731E 01	6.579E 01	6.698E 01	-7.192E 02	-2.049E 03	-9.607E 02	-1.088E 03	2.094E 03	1.696E 02	8.801E-02	1.725E 02	8.961E-02
4.733E 01	6.582E 01	6.700E 01	-7.165E 02	-2.056E 03	-9.629E 02	-1.093E 03	2.097E 03	1.693E 02	8.806E-02	1.723E 02	8.963E-02
4.811E 01	6.695E 01	5.776E 01	-5.697E 02	-2.265E 03	-1.032E 03	-1.233E 03	2.194E 03	1.722E 02	8.957E-02	1.486E 02	7.727E-02
4.877E 01	4.984E 01	4.984E 01	-4.037E 02	-2.430E 03	-1.088E 03	-1.342E 03	2.277E 03	1.282E 02	6.667E-02	1.282E 02	6.667E-02
4.878E 01	4.972E 01	4.972E 01	-4.011E 02	-2.432E 03	-1.089E 03	-1.343E 03	2.278E 03	1.279E 02	6.651E-02	1.279E 02	6.651E-02
4.931E 01	4.340E 01	4.340E 01	-2.725E 02	-2.554E 03	-1.132E 03	-1.422E 03	2.345E 03	1.116E 02	5.806E-02	1.116E 02	5.806E-02
5.072E 01	3.330E 01	3.330E 01	1.107E 01	-2.855E 03	-1.239E 03	-1.616E 03	2.522E 03	8.565E 01	4.455E-02	8.565E 01	4.455E-02
5.282E 01	2.332E 01	2.332E 01	3.228E 02	-3.249E 03	-1.378E 03	-1.871E 03	2.789E 03	5.999E 01	3.120E-02	5.999E 01	3.120E-02
5.332E 01	2.165E 01	2.165E 01	3.813E 02	-3.334E 03	-1.408E 03	-1.926E 03	2.852E 03	5.569E 01	2.896E-02	5.569E 01	2.896E-02
5.407E 01	2.019E 01	2.019E 01	4.622E 02	-3.459E 03	-1.450E 03	-2.008E 03	2.948E 03	5.193E 01	2.701E-02	5.193E 01	2.701E-02
5.483E 01	1.871E 01	1.871E 01	5.376E 02	-3.579E 03	-1.490E 03	-2.089E 03	3.046E 03	4.813E 01	2.503E-02	4.813E 01	2.503E-02
5.576E 01	1.710E 01	1.710E 01	6.207E 02	-3.718E 03	-1.534E 03	-2.184E 03	3.164E 03	4.398E 01	2.288E-02	4.396E 01	2.288E-02
5.626E 01	1.623E 01	1.623E 01	8.152E 02	-3.787E 03	-1.554E 03	-2.233E 03	3.209E 03	4.174E 01	2.171E-02	4.174E 01	2.171E-02
5.631E 01	9.262E 00	1.613E 01	8.198E 02	-3.795E 03	-1.556E 03	-2.239E 03	3.216E 03	2.382E 01	1.239E-02	4.150E 01	2.158E-02
5.645E 01	9.262E 00	1.589E 01	8.302E 02	-3.813E 03	-1.561E 03	-2.252E 03	3.234E 03	2.382E 01	1.239E-02	4.087E 01	2.126E-02
5.653E 01	1.575E 01	1.575E 01	8.366E 02	-3.824E 03	-1.563E 03	-2.260E 03	3.245E 03	4.051E 01	2.107E-02	4.051E 01	2.107E-02
5.681E 01	1.526E 01	1.526E 01	8.568E 02	-3.860E 03	-1.573E 03	-2.287E 03	3.280E 03	3.926E 01	2.042E-02	3.926E 01	2.042E-02
5.704E 01	1.428E 01	1.428E 01	8.712E 02	-3.889E 03	-1.580E 03	-2.309E 03	3.309E 03	3.672E 01	1.910E-02	3.672E 01	1.910E-02
5.776E 01	1.111E 01	1.111E 01	9.056E 02	-3.978E 03	-1.601E 03	-2.377E 03	3.402E 03	2.859E 01	1.487E-02	2.859E 01	1.487E-02
5.878E 01	6.337E 00	6.337E 00	9.258E 02	-4.089E 03	-1.625E 03	-2.463E 03	3.532E 03	1.630E 01	8.478E-03	1.630E 01	8.478E-03
6.079E 01	1.864E 01	1.864E 01	9.288E 02	-4.293E 03	-1.663E 03	-2.630E 03	3.790E 03	4.794E 01	2.493E-02	4.794E 01	2.493E-02
6.221E 01	1.701E 01	1.701E 01	9.288E 02	-4.442E 03	-1.690E 03	-2.752E 03	3.972E 03	4.374E 01	2.275E-02	4.374E 01	2.275E-02

XABS	P-IB	P-OB	PDA	GOX	Q-IB	Q-OB	CA-ALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OB/PT0
6.468E 01	2.110E 01	2.110E 01	9.288E 02	-4.752E 03	-1.760E 03	-2.971E 03	4.289E 03	5.427E 01	2.823E-02	5.427E 01	2.823E-02
6.505E 01	2.145E 01	2.175E 01	9.288E 02	-4.780E 03	-1.774E 03	-3.007E 03	4.337E 03	5.517E 01	2.870E-02	5.588E 01	2.907E-02
6.509E 01	2.145E 01	2.179E 01	9.288E 02	-4.786E 03	-1.775E 03	-3.011E 03	4.342E 03	5.517E 01	2.870E-02	5.609E 01	2.915E-02
6.529E 01	2.039E 01	2.212E 01	9.288E 02	-4.811E 03	-1.782E 03	-3.029E 03	4.368E 03	5.244E 01	2.727E-02	5.691E 01	2.960E-02
6.695E 01	1.157E 01	9.690E 00	1.106E 03	-4.964E 03	-1.832E 03	-3.152E 03	4.583E 03	2.976E 01	1.548E-02	2.492E 01	1.296E-02
6.762E 01	8.308E 00	9.315E 00	1.303E 03	-5.038E 03	-1.848E 03	-3.190E 03	4.665E 03	2.137E 01	1.111E-02	2.396E 01	1.246E-02
6.839E 01	4.560E 00	7.116E 00	1.503E 03	-5.095E 03	-1.862E 03	-3.233E 03	4.760E 03	1.173E 01	4.100E-03	1.830E 01	9.520E-03
6.911E 01	3.561E 00	5.060E 00	1.632E 03	-5.147E 03	-1.873E 03	-3.273E 03	4.848E 03	9.160E 00	4.764E-03	1.301E 01	6.769E-03
6.972E 01	2.715E 00	4.280E 00	1.716E 03	-5.168E 03	-1.881E 03	-3.307E 03	4.922E 03	6.983E 00	3.652E-03	1.101E 01	5.726E-03
7.067E 01	2.040E 00	3.065E 00	1.810E 03	-5.245E 03	-1.890E 03	-3.355E 03	5.036E 03	5.248E 00	2.730E-03	7.884E 00	4.100E-03
7.110E 01	1.735E 00	2.813E 00	1.843E 03	-5.208E 03	-1.893E 03	-3.375E 03	5.088E 03	4.463E 00	2.321E-03	7.235E 00	3.763E-03
7.263E 01	1.829E 00	1.915E 00	1.941E 03	-5.351E 03	-1.903E 03	-3.428E 03	5.275E 03	4.703E 00	2.446E-03	4.926E 00	2.562E-03
7.353E 01	1.884E 00	6.500E-01	1.999E 03	-5.364E 03	-1.907E 03	-3.457E 03	5.372E 03	4.848E 00	2.520E-03	1.672E 00	8.696E-04
7.354E 01	1.884E 00	6.444E-01	2.000E 03	-5.365E 03	-1.907E 03	-3.457E 03	5.372E 03	4.846E 00	2.520E-03	1.657E 00	8.620E-04
7.486E 01	1.965E 00	0.000	2.041E 03	-5.421E 03	-1.914E 03	-3.508E 03	5.424E 03	5.054E 00	2.629E-03	0.000	0.000
7.771E 01	2.125E 00	0.000	2.123E 03	-5.433E 03	-1.925E 03	-3.508E 03	5.523E 03	5.466E 00	2.843E-03	0.000	0.000
8.161E 01	1.475E 00	0.000	2.200E 03	-5.444E 03	-1.937E 03	-3.508E 03	5.628E 03	3.794E 00	1.973E-03	0.000	0.000
8.442E 01	1.300E 00	0.000	2.231E 03	-5.455E 03	-1.947E 03	-3.508E 03	5.682E 03	3.344E 00	1.739E-03	0.000	0.000
8.728E 01	1.795E 00	0.000	2.268E 03	-5.472E 03	-1.965E 03	-3.508E 03	5.705E 03	4.617E 00	2.401E-03	0.000	0.000
8.729E 01	1.796E 00	0.000	2.268E 03	-5.472E 03	-1.965E 03	-3.508E 03	5.705E 03	4.620E 00	2.403E-03	0.000	0.000

READING = 0064 BLOCK = 151 TIME = 239.811 MACH 0.0 PT = 747.499 TT = 2977.6

X	UDRAG	CDRAG	CF	MC
4.040E 01	1.143E 02	1.143E 02	2.181E-03	4.506E-02
4.041E 01	1.745E-01	1.145E 02	2.182E-03	4.509E-02
4.130E 01	1.708E 01	1.316E 02	2.788E-03	4.651E-02
4.131E 01	1.931E-01	1.318E 02	2.465E-03	5.101E-02
4.137E 01	1.184E 00	1.330E 02	2.418E-03	5.248E-02
4.150E 01	2.259E 00	1.352E 02	2.436E-03	5.589E-02
4.246E 01	1.602E 01	1.512E 02	2.596E-03	7.157E-02
4.409E 01	2.283E 01	1.741E 02	2.984E-03	7.326E-02
4.431E 01	2.549E 00	1.766E 02	3.055E-03	7.104E-02
4.480E 01	5.653E 00	1.823E 02	3.065E-03	7.004E-02
4.481E 01	1.086E-01	1.824E 02	3.065E-03	7.004E-02
4.625E 01	1.644E 01	1.988E 02	3.423E-03	6.268E-02
4.626E 01	1.169E-01	1.989E 02	3.423E-03	6.268E-02
4.731E 01	1.091E 01	2.098E 02	2.837E-03	7.687E-02
4.733E 01	2.363E-01	2.101E 02	2.945E-03	7.363E-02
4.811E 01	7.345E 00	2.174E 02	2.890E-03	7.352E-02
4.877E 01	7.091E 00	2.245E 02	3.295E-03	6.274E-02
4.878E 01	1.126E-01	2.246E 02	2.884E-03	7.276E-02
4.931E 01	5.615E 00	2.302E 02	2.812E-03	7.076E-02
5.072E 01	1.495E 01	2.452E 02	2.756E-03	6.240E-02
5.282E 01	2.186E 01	2.670E 02	2.767E-03	4.966E-02
5.332E 01	5.204E 00	2.722E 02	2.870E-03	4.558E-02
5.407E 01	7.753E 00	2.800E 02	2.855E-03	4.342E-02
5.483E 01	7.614E 00	2.876E 02	2.864E-03	4.089E-02
5.576E 01	9.006E 00	2.966E 02	2.860E-03	3.827E-02
5.626E 01	2.993E 00	2.996E 02	2.835E-03	3.406E-02
5.631E 01	4.439E-01	3.001E 02	3.003E-03	2.856E-02
5.645E 01	1.164E 00	3.012E 02	2.847E-03	2.968E-02
5.653E 01	6.750E-01	3.019E 02	3.225E-03	3.022E-02
5.681E 01	2.354E 00	3.042E 02	2.993E-03	3.178E-02
5.704E 01	1.857E 00	3.061E 02	2.970E-03	3.078E-02
5.776E 01	6.111E 00	3.122E 02	2.897E-03	2.689E-02
5.878E 01	8.913E 00	3.211E 02	2.725E-03	1.928E-02
6.079E 01	1.550E 01	3.366E 02	2.551E-03	4.094E-02
6.221E 01	1.074E 01	3.474E 02	3.076E-03	3.275E-02
6.468E 01	1.932E 01	3.667E 02	3.079E-03	3.545E-02
6.505E 01	2.574E 00	3.693E 02	3.249E-03	3.298E-02
6.509E 01	2.659E-01	3.695E 02	3.338E-03	3.359E-02
6.529E 01	1.352E 00	3.709E 02	3.335E-03	3.326E-02
6.695E 01	1.157E 01	3.824E 02	3.205E-03	2.442E-02
6.762E 01	4.322E 00	3.868E 02	3.177E-03	2.107E-02
6.839E 01	4.538E 00	3.913E 02	3.115E-03	1.681E-02
6.911E 01	3.634E 00	3.949E 02	3.071E-03	1.367E-02
6.972E 01	2.705E 00	3.976E 02	3.042E-03	1.160E-02
7.067E 01	3.649E 00	4.013E 02	2.999E-03	9.395E-03
7.110E 01	1.470E 00	4.026E 02	2.984E-03	8.628E-03
7.263E 01	4.763E 00	4.075E 02	2.956E-03	7.456E-03
7.353E 01	2.166E 00	4.097E 02	2.897E-03	5.540E-03
7.354E 01	3.102E-03	4.097E 02	2.897E-03	5.531E-03
7.486E 01	1.145E 00	4.108E 02	2.951E-03	7.697E-03
7.771E 01	2.505E 00	4.133E 02	2.947E-03	8.115E-03
8.161E 01	2.453E 00	4.156E 02	2.877E-03	6.120E-03
8.442E 01	1.088E 00	4.169E 02	2.846E-03	5.537E-03
8.728E 01	4.795E-01	4.174E 02	2.878E-03	7.056E-03
8.729E 01	0.000	4.174E 02	2.878E-03	7.057E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1726.	(LBF)
MEASURED THRUST	1888.	(LBF)
CALCULATED SPECIFIC IMPULSE	1628.	(LBF*SEC/LBM)
MEASURED SPECIFIC IMPULSE	1761.	(LBF*SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.6886	
MEASURED THRUST COEFFICIENT	0.7531	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	6820.	(LBF)
NET THRUST	1775.	(LBF)
SPECIFIC IMPULSE	1674.	(LBF*SEC/LBM)
THRUST COEFFICIENT	0.7082	

MOMENTUM AND FORCES

INLET FRICTION DRAG	114.3	(LBF)
INLET MOMENTUM CHANGE	-736.4	(LBF)
COMBUSTOR FRICTION DRAG	254.9	(LBF)
COMBUSTOR STRUT DRAG	0.77	(LBF)
COMBUSTOR MOMENTUM CHANGE	1171.	(LBF)
NOZZLE FRICTION DRAG	48.10	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1291.	(LBF)
NOZZLE PRESSURE INTEGRAL	1339.	(LBF)
EXTERNAL FRICTION DRAG	49.54	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1059.	(LBF)
TOTAL EXTERNAL DRAG	-1109.	(LBF)
TOTAL STRUT DRAG	0.77	(LBF)
CAVITY FORCE	-1407.	(LBF)
CALCULATED LOAD CELL FORCE	-790.	(LBF)
MEASURED LOAD CELL FORCE	-629.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, -161.6, -123.2,	

STATIONS

NOMINAL CONL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3148	(IN)
INLET THROAT	40.400	(IN)
CONL LEADING EDGE	35.199	(IN)
NOZZLE SHROUD TRAILING EDGE	73.539	(IN)
NOZZLE PLUG TRAILING EDGE	87.291	(IN)
STRUT LEADING EDGE	56.455	(IN)
STRUT TRAILING EDGE	65.055	(IN)
COMBUSTOR EXIT	65.055	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9863	
ADDITIVE DRAG COEFFICIENT	0.0004	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1626	
DELTA PT2	0.1181	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.3961	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1649	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8963	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9055	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9379	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8876	
ENTHALPY AT P0 = SUPERSONIC	-6.20	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	28.83	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0393	
EQUIVALENCE RATIO	1.340	
COMBUSTOR EFFICIENCY	0.608	
TOTAL PRESSURE RATIO	0.1449	
COMBUSTOR EFFECTIVENESS	0.7744	
INJECTOR DISCHARGE COEFFICIENTS	0.7291, 0.7633, 0.7602,	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9524
NOZZLE COEFFICIENT = CT	0.8745
PROCESS EFFICIENCY	0.8870
KINETIC ENERGY EFFICIENCY	0.8933

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.300	B
1C	44.300	
2A	48.775	D
2C	46.250	A
3A	54.065	
3B	56.250	
4	44.800	

Reading 64

t = 261.41 sec.

READING = 0064 BLOCK = 1/5 TIME = 261.411 MACH 6.0 PT = 746.749 TT = 2981.4

RAMJET PERFORMANCE

928

S U M M A R Y R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	w/A	w	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	746.749	2981	665.2(791)	1.2943	28.852	2579											
0.000	0.389	403	=32.4(97)	1.3987	28.851	985	5.997	5908	1.826	0.10655	26.906	0.9859	5039	9.784	187.3		
SPIKE TIP NS		2	0 4														
0.600	18.062	2981	665.2(791)	1.2942	28.851	2579											
0.600	16.307	2913	644.5(771)	1.2963	28.851	2551	0.400	1019	2.083	0.10655	26.906	0.9859	4970	1.688	184.7		
WIND TUNNEL		3	0 0														
0.000	746.749	2981	665.2(791)	1.2943	28.852	2579											
0.000	0.380	400	=33.0(96)	1.3987	28.851	982	6.021	5911	1.826	0.10476	26.454	0.9859	4956	9.624	187.3		
SPIKE TIP NS		4	0 0														
0.600	18.062	2981	665.2(791)	1.2942	28.851	2579											
0.600	16.374	2915	645.3(772)	1.2962	28.851	2552	0.391	999	2.083	0.10476	26.454	0.9859	4956	1.626	187.3		
INLET THROAT		5	0 2														
40.400	304.297	2941	653.2(779)	1.2955	28.851	2563											
40.400	15.403	1417	220.8(350)	1.3536	28.851	1818	2.558	4651	1.884	0.94378	26.906	0.1113	4329	68.222	160.9		
INLET UPNRSK		6	0 3														
40.400	304.297	2941	653.2(779)	1.2955	28.851	2563											
40.400	13.237	1362	206.3(336)	1.3569	28.851	1785	2.650	4729	1.884	0.85798	26.906	0.1224	4370	63.051	162.4		
INLET DNNRSK		7	0 4														
40.400	124.007	2941	653.2(779)	1.2955	28.851	2563											
40.400	106.700	2842	623.2(750)	1.2986	28.851	2522	0.485	1224	1.946	0.85798	26.906	0.1224	4370	16.320	162.4		
COMBUSTOR	0	8	1 2														
40.410	303.772	2941	653.1(779)	1.2955	28.851	2563											
40.410	15.415	1418	221.0(350)	1.3536	28.851	1819	2.557	4650	1.884	0.94366	26.906	0.1113	4328	68.193	160.9		
COMBUSTOR	0	9	2 21														
41.302	188.688	2904	668.9(833)	1.2989	26.521	2659											
41.302	18.905	1660	283.6(451)	1.3431	26.521	2044	2.148	4391	2.051	0.95205	27.093	0.1111	4235	64.962	156.3	0.24	0.07
COMBUSTOR	0	10	3 21														
41.312	203.382	2832	668.9(811)	1.3021	26.446	2633											
41.312	18.944	1582	284.0(429)	1.3477	26.446	2002	2.192	4389	2.039	0.95282	27.093	0.1110	4234	64.983	156.3	0.24	0.01
COMBUSTOR	0	11	4 21														
41.377	203.314	2821	668.7(808)	1.3027	26.435	2629											
41.377	19.199	1581	286.9(428)	1.3479	26.434	2002	2.183	4371	2.038	0.95285	27.093	0.1110	4226	64.723	156.0	0.24	0.00
COMBUSTOR	0	12	5 21														
41.500	199.245	2819	668.3(807)	1.3028	26.433	2628											
41.500	19.975	1604	294.1(435)	1.3467	26.433	2015	2.147	4328	2.039	0.95316	27.093	0.1110	4212	64.102	155.5	0.24	0.00
COMBUSTOR	0	13	6 21														
42.460	175.014	2807	664.6(803)	1.3032	26.433	2623											
42.460	19.354	1637	303.9(445)	1.3451	26.432	2035	2.088	4249	2.048	0.94374	27.093	0.1121	4133	62.311	152.6	0.24	0.00
COMBUSTOR	0	14	7 4														
44.097	144.927	2892	656.9(829)	1.2989	26.548	2652											
44.097	25.979	1914	351.2(526)	1.3322	26.548	2185	1.790	3911	2.069	0.91180	27.093	0.1160	4065	55.419	150.1	0.24	0.10
COMBUSTOR	0	15	8 3														
44.310	141.242	2909	655.8(834)	1.2981	26.569	2658											
44.310	26.683	1952	356.1(537)	1.3305	26.569	2205	1.757	3873	2.073	0.91009	27.093	0.1162	4055	54.770	149.7	0.24	0.11
COMBUSTOR	0	16	9 3														
44.800	133.861	2945	653.1(844)	1.2963	26.616	2670											
44.800	28.302	2035	366.8(561)	1.3269	26.616	2246	1.685	3785	2.079	0.90647	27.093	0.1167	4033	53.313	148.8	0.24	0.15
COMBUSTOR	0	17	10 2														
44.812	133.803	2944	653.1(844)	1.2964	26.615	2670											
44.812	28.302	2035	366.9(561)	1.3270	26.616	2246	1.685	3783	2.079	0.90645	27.093	0.1167	4032	53.298	148.8	0.24	0.15
COMBUSTOR	0	18	11 4														
46.260	121.897	3007	644.5(863)	1.2931	26.711	2690											
46.260	28.280	2131	367.4(589)	1.3224	26.712	2290	1.626	3723	2.090	0.85395	27.093	0.1239	4032	49.411	148.8	0.24	0.23

	P	T	M	GAMMA	PRNT SONV	MACH	VEL	S	M/A	n	A/AC	MOMTM	Q	IVAL	PHI	ETAC
COMBUSTOR	0	19	12 4													
47.310	112.016	3164	636.1(910)	1.2855	26.905 2742											
47.310	28.264	2302	361.9(639)	1.3142	26.906 2365	1.572	3717	2.107	0.79457	27.093	0.1331	4094	45.901	151.1	0.24	0.39
COMBUSTOR	0	20	13 2													
47.337	111.679	3171	637.9(913)	1.2852	26.913 2744											
47.337	28.353	2311	362.2(642)	1.3138	26.914 2368	1.568	3714	2.108	0.79344	27.093	0.1333	4095	45.795	151.2	0.24	0.40
COMBUSTOR	0	21	14 4													
48.110	104.860	3296	633.5(951)	1.2790	27.069 2783											
48.110	27.444	2431	353.3(677)	1.3080	27.071 2417	1.549	3744	2.120	0.74038	27.093	0.1429	4157	43.079	153.4	0.24	0.52
COMBUSTOR	0	22	15 3													
48.787	105.875	3252	630.0(937)	1.2810	27.030 2768											
48.787	22.363	2276	316.6(629)	1.3138	27.032 2345	1.689	3959	2.116	0.68066	27.093	0.1554	4224	41.683	155.9	0.24	0.49
COMBUSTOR	0	23	16 3													
49.317	107.238	3215	627.5(926)	1.2827	26.997 2756											
49.317	19.133	2158	290.1(594)	1.3183	26.999 2289	1.795	4109	2.112	0.63659	27.093	0.1662	4274	40.648	157.8	0.24	0.47
COMBUSTOR	0	24	17 3													
50.727	102.859	3248	621.9(935)	1.2809	27.053 2765											
50.727	14.887	2076	248.8(568)	1.3207	27.055 2244	1.925	4321	2.117	0.54254	27.093	0.1950	4382	36.431	161.7	0.24	0.51
COMBUSTOR	0	25	18 4													
52.827	88.066	3433	614.2(992)	1.2713	27.290 2820											
52.827	12.450	2203	217.7(604)	1.3135	27.295 2296	1.940	4454	2.137	0.44468	27.093	0.2379	4509	30.783	166.4	0.24	0.70
COMBUSTOR	0	26	19 202													
53.327	73.007	3742	612.3(1087)	1.2544	27.664 2904											
53.327	18.092	2776	287.4(777)	1.2895	27.679 2536	1.590	4032	2.163	0.42651	27.093	0.2480	4544	26.724	167.7	0.24	1.00
COMBUSTOR	0	27	20 5													
54.067	56.694	3734	646.6(1226)	1.2574	24.348 3096											
54.067	21.355	3033	377.6(970)	1.2838	24.360 2819	1.301	3668	2.422	0.40708	27.412	0.2629	4563	23.207	166.5	0.64	0.46
COMBUSTOR	0	28	21 2													
54.077	56.628	3738	646.5(1227)	1.2571	24.352 3097											
54.077	21.399	3039	378.1(972)	1.2835	24.365 2821	1.299	3665	2.422	0.40678	27.412	0.2631	4564	23.166	166.5	0.64	0.47
COMBUSTOR	0	29	22 4													
54.837	52.748	4048	642.4(1336)	1.2372	24.700 3175											
54.837	24.750	3485	413.5(1127)	1.2614	24.729 2973	1.159	3385	2.443	0.38467	27.412	0.2782	4647	20.233	169.5	0.64	0.60
COMBUSTOR	0	30	23 4													
55.760	50.372	4328	636.7(1435)	1.2168	25.032 3234											
55.760	27.268	3871	437.3(1263)	1.2383	25.085 3082	1.025	3159	2.457	0.36122	27.412	0.2963	4761	17.733	173.7	0.64	0.73
COMBUSTOR	0	31	24 4													
56.252	45.244	4595	662.2(1703)	1.1961	22.698 3470											
56.252	28.609	4266	484.7(1563)	1.2124	22.772 3360	0.887	2980	2.707	0.29452	27.731	0.3676	5262	13.639	189.8	1.04	0.63
COMBUSTOR	0	32	25 2													
56.262	45.227	4597	662.1(1703)	1.1960	22.700 3470											
56.262	28.636	4269	485.1(1564)	1.2121	22.774 3361	0.886	2976	2.707	0.29425	27.731	0.3679	5264	13.610	189.8	1.04	0.63
COMBUSTOR	0	33	26 3													
56.317	45.107	4628	661.7(1716)	1.1932	22.734 3475											
56.317	28.118	4291	477.8(1572)	1.2097	22.815 3363	0.902	3033	2.709	0.29342	27.731	0.3690	5272	13.632	190.1	1.04	0.64
COMBUSTOR	0	34	27 3													
56.457	44.986	4653	660.8(1726)	1.1910	22.762 3479											
56.457	28.309	4326	479.6(1586)	1.2068	22.846 3370	0.893	3011	2.710	0.29132	27.731	0.3717	5290	13.631	190.8	1.04	0.65
COMBUSTOR	0	35	28 5													
56.537	45.694	4647	660.2(1723)	1.1918	22.757 3478											
56.537	29.386	4334	487.4(1590)	1.2069	22.836 3374	0.871	2940	2.708	0.29463	27.731	0.3675	5300	13.462	191.1	1.04	0.65
COMBUSTOR	0	36	29 3													
56.817	45.956	4680	658.3(1736)	1.1889	22.796 3484											
56.817	30.150	4384	492.1(1610)	1.2030	22.877 3385	0.852	2884	2.708	0.29360	27.731	0.3688	5333	13.158	192.3	1.04	0.66
COMBUSTOR	0	37	30 4													
57.043	46.116	4727	656.8(1755)	1.1848	22.848 3491											
57.043	30.282	4436	489.5(1630)	1.1962	22.938 3394	0.852	2893	2.709	0.29316	27.731	0.3693	5358	13.179	193.2	1.04	0.68

READING = 0064 BLOCK = 175 TIME = 261.411 MACH 6.0 P1 = 746.749 TT = 2981.4

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 4														
57.767	46.097	4833	652.0(1797)	1.1751	22.970	3506											
57.767	30.705	4563	487.3(1680)	1.1862	23.078	3415	0.841	2871	2.712	0.28851	27.731	0.3753	5426	12.872	195.7	1.04	0.74
COMBUSTOR	0	39	32 4														
58.787	46.529	4856	645.7(1806)	1.1729	23.010	3508											
58.787	32.062	4612	493.8(1700)	1.1825	23.114	3425	0.805	2757	2.711	0.28667	27.731	0.3777	5478	12.282	197.5	1.04	0.75
COMBUSTOR	0	40	33 4														
60.797	47.393	4925	634.4(1833)	1.1665	23.108	3516											
60.797	30.675	4649	455.9(1713)	1.1763	23.244	3420	0.874	2989	2.709	0.29664	27.751	0.3650	5444	13.779	196.3	1.04	0.79
COMBUSTOR	0	41	34 4														
62.217	48.074	4948	627.1(1841)	1.1645	23.148	3518											
62.217	28.312	4615	410.6(1697)	1.1761	23.318	3402	0.968	3291	2.707	0.30468	27.751	0.3553	5414	15.585	195.2	1.04	0.81
COMBUSTOR REGEN		42	35 21														
62.217	48.074	4965	641.1(1849)	1.1636	23.133	3524											
62.217	28.885	4646	431.6(1711)	1.1743	23.300	3412	0.949	3238	2.710	0.30468	27.731	0.3553	5420	15.333	195.5	1.04	0.81
NOZZLE AE		43	36 5														
87.293	48.074	4948	627.1(1835)	1.1645	23.148	3518											
87.293	1.244	2591	=536.4(871)	1.2795	23.584	2644	2.886	7630	2.707	0.05589	27.731	1.9371	7194	6.628	259.4	1.04	0.81
NOZZLE PO		44	37 5														
87.293	48.074	4948	627.1(1835)	1.1645	23.148	3518											
87.293	0.389	1994	=760.0(648)	1.3025	23.584	2340	3.560	8331	2.707	0.02480	27.731	4.3658	7616	3.211	274.6	1.04	0.81
NOZZLE AE REGEN		45	38 5														
87.293	48.074	4965	641.1(1849)	1.1636	23.133	3524											
87.293	1.252	2614	=527.6(880)	1.2786	23.584	2655	2.881	7647	2.710	0.05589	27.731	1.9371	7212	6.643	260.1	1.04	0.81
NOZZLE PO REGEN		46	39 5														
87.293	48.074	4965	641.1(1849)	1.1636	23.133	3524											
87.293	0.389	2010	=754.3(654)	1.3018	23.584	2349	3.558	8356	2.710	0.02468	27.731	4.3867	7639	3.205	275.5	1.04	0.81
FICTIVE COMBUSTR		67	60 0														
62.217	304.297	5416	627.1(2031)	1.1637	23.633	3641											
62.217	0.389	1492	=1167.7(464)	1.3220	24.205	2013	4.708	9477	2.550	0.03870	27.731	2.7976	8447	5.700	304.6	1.04	1.00
FICTIVE NOZZLE		68	61 0														
87.293	24.203	4827	583.3(1790)	1.1600	23.126	3469											
87.293	1.718	3146	=315.3(1088)	1.2569	23.577	2887	2.322	6706	2.757	0.05589	27.731	1.9371	6632	5.824	239.2	1.04	0.81

XARS	P-IR	P-Ob	PDA	W0X	W-IR	Q-OB	CAWALL	P-Ib/PSI	P-Ib/PIO	P-Ob/PSO	P-OB/PIO
6.981E-01	1.040E 00	0.000	-4.001E-01	0.000	0.000	0.000	2.470E-02	2.674E 00	1.393E-03	0.000	0.000
1.836E 01	1.040E 00	0.000	-3.403E 01	0.000	0.000	0.000	1.634E 02	2.674E 00	1.393E-03	0.000	0.000
3.070E 01	2.205E 00	0.000	-1.662E 02	0.000	0.000	0.000	5.053E 02	5.669E 00	2.953E-03	0.000	0.000
3.908E 01	4.886E 00	0.000	-3.655E 02	0.000	0.000	0.000	6.804E 02	9.990E 00	5.203E-03	0.000	0.000
3.919E 01	3.917E 00	5.738E 00	-4.296E 02	0.000	0.000	0.000	6.855E 02	1.007E 01	5.246E-03	1.475E 01	7.684E-03
3.920E 01	3.919E 00	5.705E 00	-4.297E 02	0.000	0.000	0.000	6.858E 02	1.006E 01	5.248E-03	1.467E 01	7.640E-03
3.555E 01	4.015E 00	5.802E 00	-4.373E 02	0.000	0.000	0.000	7.208E 02	1.032E 01	5.377E-03	9.775E 00	5.091E-03
3.587E 01	3.959E 00	2.075E 00	-4.520E 02	-1.998E 02	-1.998E 02	0.000	7.530E 02	1.018E 01	5.302E-03	5.335E 00	2.779E-03
3.646E 01	3.925E 00	2.679E 00	-4.622E 02	-2.020E 02	-2.020E 02	0.000	7.727E 02	1.009E 01	5.256E-03	7.401E 00	3.855E-03
3.648E 01	4.221E 00	4.626E 00	-4.812E 02	-2.070E 02	-2.070E 02	0.000	8.164E 02	1.085E 01	5.653E-03	1.189E 01	6.195E-03
3.701E 01	4.225E 00	6.832E 00	-5.049E 02	-2.252E 02	-2.135E 02	-1.176E 01	8.722E 02	1.086E 01	5.658E-03	1.756E 01	9.149E-03
3.733E 01	4.109E 00	8.150E 00	-5.159E 02	-2.332E 02	-2.175E 02	-1.572E 01	9.064E 02	1.056E 01	5.502E-03	2.095E 01	1.091E-02
3.803E 01	3.850E 00	1.328E 01	-5.294E 02	-2.512E 02	-2.270E 02	-2.425E 01	9.832E 02	9.896E 00	5.156E-03	3.414E 01	1.778E-02
3.835E 01	5.402E 00	1.559E 01	-5.279E 02	-2.596E 02	-2.316E 02	-2.804E 01	1.019E 03	1.389E 01	7.234E-03	4.007E 01	2.087E-02
3.875E 01	7.377E 00	1.551E 01	-5.284E 02	-2.709E 02	-2.381E 02	-3.282E 01	1.064E 03	1.896E 01	9.878E-03	3.988E 01	2.077E-02
3.882E 01	7.704E 00	1.550E 01	-5.285E 02	-2.728E 02	-2.392E 02	-3.361E 01	1.072E 03	1.981E 01	1.032E-02	3.985E 01	2.076E-02
3.901E 01	8.650E 00	1.573E 01	-5.280E 02	-2.785E 02	-2.426E 02	-3.587E 01	1.094E 03	2.224E 01	1.158E-02	4.043E 01	2.106E-02
3.933E 01	1.376E 01	1.610E 01	-5.329E 02	-2.882E 02	-2.487E 02	-3.956E 01	1.130E 03	3.537E 01	1.842E-02	4.139E 01	2.156E-02
3.950E 01	1.655E 01	1.405E 01	-5.401E 02	-2.937E 02	-2.522E 02	-4.155E 01	1.150E 03	4.255E 01	2.216E-02	3.612E 01	1.881E-02
3.982E 01	1.707E 01	1.030E 01	-5.570E 02	-3.041E 02	-2.590E 02	-4.513E 01	1.187E 03	4.389E 01	2.286E-02	2.648E 01	1.379E-02
4.000E 01	1.737E 01	1.023E 01	-5.682E 02	-3.104E 02	-2.632E 02	-4.716E 01	1.209E 03	4.467E 01	2.327E-02	2.631E 01	1.371E-02
4.040E 01	2.069E 01	1.009E 01	-5.941E 02	-3.249E 02	-2.729E 02	-5.200E 01	1.256E 03	5.309E 01	2.766E-02	2.595E 01	1.351E-02
4.041E 01	2.073E 01	1.009E 01	-5.947E 02	-3.253E 02	-2.732E 02	-5.214E 01	1.257E 03	5.330E 01	2.776E-02	2.594E 01	1.351E-02
4.130E 01	2.804E 01	9.770E 00	-6.702E 02	-3.771E 02	-2.974E 02	-7.972E 01	1.362E 03	7.209E 01	3.755E-02	2.512E 01	1.308E-02
4.131E 01	2.812E 01	9.767E 00	-6.711E 02	-3.779E 02	-2.977E 02	-8.020E 01	1.363E 03	7.230E 01	3.766E-02	2.511E 01	1.308E-02
4.138E 01	2.865E 01	9.744E 00	-6.776E 02	-3.841E 02	-2.996E 02	-8.344E 01	1.371E 03	7.367E 01	3.837E-02	2.505E 01	1.305E-02
4.150E 01	2.966E 01	1.029E 01	-6.900E 02	-3.933E 02	-3.033E 02	-8.999E 01	1.386E 03	7.626E 01	3.972E-02	2.645E 01	1.378E-02
4.246E 01	2.419E 01	1.452E 01	-7.510E 02	-4.988E 02	-3.349E 02	-1.579E 02	1.501E 03	6.218F 01	3.239E-02	3.733E 01	1.944E-02
4.410E 01	3.022E 01	2.174E 01	-7.899E 02	-7.041E 02	-3.990E 02	-3.052E 02	1.699E 03	7.770E 01	4.047E-02	5.589E 01	2.911E-02
4.431E 01	3.101E 01	2.236E 01	-7.963E 02	-7.368E 02	-4.082E 02	-3.256E 02	1.725E 03	7.972E 01	4.152E-02	5.749E 01	2.994E-02
4.480E 01	3.281E 01	2.379E 01	-8.104E 02	-8.060E 02	-4.301E 02	-3.759E 02	1.784E 03	8.436E 01	4.394E-02	6.116E 01	3.186E-02
4.481E 01	3.278E 01	2.383E 01	-8.110E 02	-8.078E 02	-4.306E 02	-3.772E 02	1.786E 03	8.427E 01	4.389E-02	6.125E 01	3.191E-02
4.626E 01	2.850E 01	2.806E 01	-7.862E 02	-1.039E 03	-4.953E 02	-5.440E 02	1.964E 03	7.328E 01	3.817E-02	7.213E 01	3.757E-02
4.731E 01	2.541E 01	3.112E 01	-7.083E 02	-1.213E 03	-5.402E 02	-6.731E 02	2.094E 03	6.532E 01	3.402E-02	8.001E 01	4.168E-02
4.734E 01	2.551E 01	3.120E 01	-7.062E 02	-1.218E 03	-5.414E 02	-6.764E 02	2.097E 03	6.558E 01	3.416E-02	8.021E 01	4.178E-02
4.811E 01	2.840E 01	2.649E 01	-6.330E 02	-1.338E 03	-5.735E 02	-7.650E 02	2.194E 03	7.301E 01	3.803E-02	6.810E 01	3.547E-02
4.879E 01	2.236E 01	2.236E 01	-5.558E 02	-1.432E 03	-6.009E 02	-8.315E 02	2.278E 03	5.749E 01	2.995E-02	5.749E 01	2.995E-02
4.932E 01	1.913E 01	1.913E 01	-4.984E 02	-1.498E 03	-6.220E 02	-8.764E 02	2.345E 03	4.919E 01	2.562E-02	4.919E 01	2.562E-02
5.073E 01	1.489E 01	1.489E 01	-3.727E 02	-1.651E 03	-6.761E 02	-9.751E 02	2.522E 03	3.827E 01	1.994E-02	3.827E 01	1.994E-02
5.283E 01	1.245E 01	1.245E 01	-2.222E 02	-1.858E 03	-7.516E 02	-1.106E 03	2.789E 03	3.201E 01	1.667E-02	3.201E 01	1.667E-02
5.333E 01	1.809E 01	1.809E 01	-1.825E 02	-1.912E 03	-7.687E 02	-1.143E 03	2.852E 03	4.651E 01	2.423E-02	4.651E 01	2.423E-02
5.407E 01	2.136E 01	2.136E 01	-1.072E 02	-2.006E 03	-7.933E 02	-1.212E 03	2.947E 03	5.490E 01	2.860E-02	5.490E 01	2.860E-02
5.408E 01	2.140E 01	2.140E 01	-1.061E 02	-2.007E 03	-7.937E 02	-1.213E 03	2.948E 03	5.502E 01	2.866E-02	5.502E 01	2.866E-02
5.484E 01	2.475E 01	2.475E 01	-1.663E 01	-2.119E 03	-8.182E 02	-1.300E 03	3.046E 03	6.363E 01	3.314E-02	6.363E 01	3.314E-02
5.576E 01	2.727E 01	2.727E 01	1.038E 02	-2.274E 03	-8.470E 02	-1.427E 03	3.164E 03	7.010E 01	3.652E-02	7.010E 01	3.652E-02
5.625E 01	2.861E 01	2.861E 01	6.074E 02	-2.366E 03	-8.611E 02	-1.505E 03	3.208E 03	7.355E 01	3.831E-02	7.355E 01	3.831E-02
5.626E 01	2.864E 01	2.864E 01	6.094E 02	-2.368E 03	-8.613E 02	-1.506E 03	3.209E 03	7.362E 01	3.835E-02	7.362E 01	3.835E-02
5.632E 01	2.745E 01	2.879E 01	6.175E 02	-2.378E 03	-8.628E 02	-1.515E 03	3.216E 03	7.057E 01	3.676E-02	7.401E 01	3.855E-02
5.644E 01	2.745E 01	2.917E 01	6.364E 02	-2.405E 03	-8.665E 02	-1.539E 03	3.234E 03	7.057E 01	3.676E-02	7.499E 01	3.906E-02
5.654E 01	2.939E 01	2.939E 01	6.482E 02	-2.420E 03	-8.686E 02	-1.552E 03	3.245E 03	7.555E 01	3.935E-02	7.555E 01	3.935E-02
5.682E 01	3.015E 01	3.015E 01	6.870E 02	-2.473E 03	-8.759E 02	-1.597E 03	3.280E 03	7.751E 01	4.037E-02	7.751E 01	4.037E-02
5.704E 01	3.028E 01	3.028E 01	7.164E 02	-2.515E 03	-8.817E 02	-1.634E 03	3.309E 03	7.785E 01	4.055E-02	7.785E 01	4.055E-02
5.777E 01	3.070E 01	3.070E 01	7.991E 02	-2.648E 03	-8.997E 02	-1.748E 03	3.402E 03	7.894E 01	4.112E-02	7.894E 01	4.112E-02
5.879E 01	3.206E 01	3.206E 01	8.718E 02	-2.822E 03	-9.238E 02	-1.898E 03	3.532E 03	8.243E 01	4.294E-02	8.243E 01	4.294E-02
6.080E 01	3.067E 01	3.067E 01	8.791E 02	-3.135E 03	-9.693E 02	-2.165E 03	3.790E 03	7.886E 01	4.108E-02	7.886E 01	4.108E-02
6.272E 01	2.831E 01	2.831E 01	8.791E 02	-3.339E 03	-1.005E 03	-2.334E 03	3.972E 03	7.279E 01	3.791E-02	7.279E 01	3.791E-02

READING = 0064 BLOCK = 175 TIME = 261.411 MACH 6.0 P1 = 746.749 TT = 2981.4 PAGE 5

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CA-ALL	P-IB/PS0	P-IB/P10	P-OB/PS0	P-OB/P10
6.468E 01	2.270E 01	2.270E 01	8.791E 02	-3.695E 03	-1.084E 03	-2.611E 03	4.289E 03	5.837E 01	3.040E-02	5.837E 01	3.040E-02
6.506E 01	2.134E 01	2.185E 01	8.791E 02	-3.751E 03	-1.098E 03	-2.654E 03	4.337E 03	5.486E 01	2.857E-02	5.617E 01	2.926E-02
6.510E 01	2.134E 01	2.176E 01	8.791E 02	-3.757E 03	-1.099E 03	-2.658E 03	4.342E 03	5.486E 01	2.857E-02	5.593E 01	2.913E-02
6.530E 01	2.006E 01	2.130E 01	8.791E 02	-3.785E 03	-1.107E 03	-2.678E 03	4.368E 03	5.156E 01	2.686E-02	5.476E 01	2.852E-02
6.696E 01	9.420E 00	8.440E 00	1.044E 03	-3.974E 03	-1.158E 03	-2.816E 03	4.583E 03	2.422E 01	1.261E-02	2.170E 01	1.130E-02
6.763E 01	7.184E 00	8.400E 00	1.213E 03	-4.052E 03	-1.174E 03	-2.858E 03	4.665E 03	1.847E 01	9.621E-03	2.160E 01	1.125E-02
6.840E 01	4.615E 00	6.767E 00	1.398E 03	-4.096E 03	-1.189E 03	-2.907E 03	4.760E 03	1.186E 01	6.180E-03	1.740E 01	9.062E-03
6.912E 01	3.800E 00	5.240E 00	1.528E 03	-4.156E 03	-1.201E 03	-2.956E 03	4.848E 03	9.770E 00	5.089E-03	1.347E 01	7.017E-03
6.973E 01	3.110E 00	4.575E 00	1.618E 03	-4.207E 03	-1.209E 03	-2.998E 03	4.922E 03	7.996E 00	4.165E-03	1.176E 01	6.127E-03
7.068E 01	2.387E 00	3.540E 00	1.724E 03	-4.277E 03	-1.219E 03	-3.058E 03	5.036E 03	6.137E 00	3.197E-03	9.101E 00	4.741E-03
7.111E 01	2.060E 00	3.250E 00	1.763E 03	-4.305E 03	-1.224E 03	-3.082E 03	5.088E 03	5.296E 00	2.759E-03	8.357E 00	4.353E-03
7.264E 01	2.078E 00	2.220E 00	1.876E 03	-4.383E 03	-1.236E 03	-3.147E 03	5.273E 03	5.343E 00	2.783E-03	5.707E 00	2.973E-03
7.354E 01	2.089E 00	7.750E-01	1.943E 03	-4.422E 03	-1.242E 03	-3.180E 03	5.372E 03	5.371E 00	2.798E-03	1.992E 00	1.038E-03
7.354E 01	2.089E 00	7.686E-01	1.944E 03	-4.423E 03	-1.243E 03	-3.180E 03	5.372E 03	5.371E 00	2.798E-03	1.976E 00	1.029E-03
7.487E 01	2.105E 00	0.000	1.988E 03	-4.489E 03	-1.251E 03	-3.239E 03	5.424E 03	5.412E 00	2.819E-03	0.000	0.000
7.772E 01	2.105E 00	0.000	2.073E 03	-4.504E 03	-1.265E 03	-3.239E 03	5.523E 03	5.412E 00	2.819E-03	0.000	0.000
8.162E 01	1.260E 00	0.000	2.144E 03	-4.518E 03	-1.280E 03	-3.239E 03	5.628E 03	3.239E 00	1.687E-03	0.000	0.000
8.443E 01	1.360E 00	0.000	2.174E 03	-4.531E 03	-1.293E 03	-3.239E 03	5.682E 03	3.496E 00	1.821E-03	0.000	0.000
8.729E 01	1.890E 00	0.000	2.213E 03	-4.554E 03	-1.315E 03	-3.239E 03	5.705E 03	4.859E 00	2.531E-03	0.000	0.000
8.729E 01	1.891E 00	0.000	2.213E 03	-4.554E 03	-1.315E 03	-3.239E 03	5.705E 03	4.862E 00	2.532E-03	0.000	0.000

X	WDRAG	CURAG	CF	PL
4.040E 01	1.166E 02	1.180E 02	2.188E+03	4.507E+02
4.041E 01	1.762E+01	1.187E 02	2.188E+03	4.306E+02
4.130E 01	1.745E 01	1.362E 02	2.781E+03	4.563E+02
4.131E 01	1.984E+01	1.364E 02	2.449E+03	5.005E+02
4.138E 01	1.216E 00	1.376E 02	2.398E+03	5.122E+02
4.150E 01	2.275E 00	1.399E 02	2.404E+03	5.254E+02
4.246E 01	1.760E 01	1.575E 02	2.448E+03	5.017E+02
4.410E 01	2.896E 01	1.864E 02	2.519E+03	5.893E+02
4.431E 01	3.655E 00	1.901E 02	2.601E+03	5.827E+02
4.480E 01	8.450E 00	1.986E 02	2.629E+03	5.958E+02
4.481E 01	2.042E+01	1.988E 02	2.657E+03	5.902E+02
4.626E 01	2.425E 01	2.230E 02	2.649E+03	5.785E+02
4.731E 01	1.650E 01	2.395E 02	2.668E+03	5.634E+02
4.734E 01	4.212E+01	2.399E 02	2.768E+03	5.455E+02
4.811E 01	1.179E 01	2.517E 02	2.742E+03	5.309E+02
4.879E 01	9.894E 00	2.616E 02	2.758E+03	4.556E+02
4.932E 01	7.480E 00	2.691E 02	2.695E+03	4.158E+02
5.073E 01	1.808E 01	2.872E 02	2.589E+03	3.474E+02
5.283E 01	2.286E 01	3.100E 02	2.520E+03	2.975E+02
5.333E 01	4.787E 00	3.148E 02	2.705E+03	3.530E+02
5.407E 01	7.008E 00	3.218E 02	3.234E+03	3.383E+02
5.408E 01	9.292E+02	3.219E 02	3.033E+03	3.636E+02
5.484E 01	6.418E 00	3.283E 02	3.041E+03	3.788E+02
5.576E 01	6.977E 00	3.353E 02	3.154E+03	3.662E+02
5.625E 01	2.232E 00	3.375E 02	3.340E+03	3.350E+02
5.626E 01	5.797E+02	3.376E 02	3.329E+03	3.363E+02
5.632E 01	3.214E+01	3.379E 02	3.320E+03	3.365E+02
5.646E 01	8.114E+01	3.387E 02	3.330E+03	3.348E+02
5.654E 01	4.665E+01	3.392E 02	3.399E+03	3.299E+02
5.682E 01	1.598E 00	3.408E 02	3.334E+03	3.306E+02
5.704E 01	1.266E 00	3.421E 02	3.335E+03	3.391E+02
5.777E 01	4.025E 00	3.461E 02	3.336E+03	3.380E+02
5.879E 01	5.515E 00	3.516E 02	3.373E+03	3.339E+02
6.080E 01	1.128E 01	3.629E 02	3.339E+03	3.447E+02
6.222E 01	8.910E 00	3.718E 02	3.324E+03	3.480E+02
8.729E 01	2.519E 00	3.911E 02	3.319E+03	3.039E+02
6.468E 01	1.773E 01	4.088E 02	3.350E+03	3.406E+02
6.506E 01	2.936E 00	4.117E 02	3.341E+03	3.352E+02
6.510E 01	3.151E+01	4.120E 02	3.341E+03	3.350E+02
6.530E 01	1.584E 00	4.136E 02	3.336E+03	3.304E+02
6.696E 01	1.273E 01	4.264E 02	3.227E+03	2.134E+02
6.763E 01	4.459E 00	4.308E 02	3.210E+03	1.956E+02
6.840E 01	4.723E 00	4.355E 02	3.167E+03	1.585E+02
6.912E 01	3.868E 00	4.394E 02	3.132E+03	1.349E+02
6.973E 01	2.951E 00	4.424E 02	3.110E+03	1.202E+02
7.068E 01	4.080E 00	4.464E 02	3.075E+03	9.908E+03
7.111E 01	1.672E 00	4.481E 02	3.061E+03	9.174E+03
7.264E 01	5.403E 00	4.535E 02	3.032E+03	7.627E+03
7.354E 01	2.434E 00	4.559E 02	2.975E+03	5.745E+03
7.354E 01	3.468E+03	4.559E 02	2.975E+03	5.735E+03
7.487E 01	1.256E 00	4.572E 02	3.017E+03	7.674E+03
7.772E 01	2.651E 00	4.599E 02	3.003E+03	7.654E+03
8.162E 01	2.431E 00	4.623E 02	2.917E+03	5.129E+03
8.443E 01	1.087E 00	4.634E 02	2.913E+03	5.415E+03
8.729E 01	5.125E+01	4.639E 02	2.943E+03	6.925E+03
8.729E 01	0.000	4.639E 02	2.943E+03	6.928E+03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1591.	(LBF)
MEASURED THRUST	1879.	(LBF)
CALCULATED SPECIFIC IMPULSE	1929.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2278.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.6347	
MEASURED THRUST COEFFICIENT	0.7497	

REGENERATIVE-COOLED ENGINE PERFORMANCE
CALCULATED

STREAM THRUST	6650.	(LBF)
NET THRUST	1608.	(LBF)
SPECIFIC IMPULSE	1950.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.6417	

MOMENTUM AND FORCES

INLET FRICTION DRAG	118.6	(LBF)
INLET MOMENTUM CHANGE	-712.7	(LBF)
COMBUSTOR FRICTION DRAG	253.2	(LBF)
COMBUSTOR STRUT DRAG	85.85	(LBF)
COMBUSTOR MOMENTUM CHANGE	1085.	(LBF)
NOZZLE FRICTION DRAG	72.82	(LBF)
NOZZLE STRUT DRAG	42.33	(LBF)
NOZZLE MOMENTUM CHANGE	1219.	(LBF)
NOZZLE PRESSURE INTEGRAL	1334.	(LBF)
EXTERNAL FRICTION DRAG	79.61	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1729.	(LBF)
TOTAL EXTERNAL DRAG	-1808.	(LBF)
TOTAL STRUT DRAG	128.18	(LBF)
CAVITY FORCE	-1608.	(LBF)
CALCULATED LOAD CELL FORCE	-1626.	(LBF)
MEASURED LOAD CELL FORCE	-1536.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, -154.8,	0.0,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.5166	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.201	(IN)
NOZZLE SHROUD TRAILING EDGE	73.541	(IN)
NOZZLE PLUG TRAILING EDGE	87.293	(IN)
STRUT LEADING EDGE	56.457	(IN)
STRUT TRAILING EDGE	65.057	(IN)
COMBUSTOR EXIT	62.217	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9859	
ADDITIVE DRAG COEFFICIENT	0.0004	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1637	
DELTA PT2	0.1178	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.4075	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1661	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8962	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9050	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9450	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8934	
ENTHALPY AT P0 = SUPERSONIC	-6.10	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	29.93	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0306	
EQUIVALENCE RATIO	1.044	
COMBUSTOR EFFICIENCY	0.811	
TOTAL PRESSURE RATIO	0.1580	
COMBUSTOR EFFECTIVENESS	0.7982	
INJECTOR DISCHARGE COEFFICIENTS	0.7343, 0.8017,	0.6596,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9220
NOZZLE COEFFICIENT = CT	0.8455
PROCESS EFFICIENCY	0.8307
KINETIC ENERGY EFFICIENCY	0.8241

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.302	B
1C	44.300	
2A	48.777	
2C	46.250	
3A	54.067	E
3B	56.252	E
4	44.802	

Reading 64

t = 293.81 sec.

READING = 0064 BLOCK = 211 TIME = 293.811 MACH 6.0 PI = 747.249 TI = 2962.2

RAMJET PERFORMANCE

1-29-75

S U M M A R Y R E P O R T

	P	T	M		GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5															
0.000	747.249	2962	659.4(	785)	1.2949	28.852	2571											
0.000	0.386	399	=33.4(	96)	1.3987	28.851	980	6.007	5888	1.624	0.10656	26.947	0.9873	5029	9.751	186.6		
SPIKE TIP NS		2	0 4															
0.600	18.050	2962	659.4(	785)	1.2948	28.851	2571											
0.600	16.305	2894	638.9(	765)	1.2969	28.851	2543	0.398	1013	2.081	0.10656	26.947	0.9873	4972	1.678	184.5		
WIND TUNNEL		3	0 0															
0.000	747.249	2962	659.4(	785)	1.2949	28.852	2571											
0.000	0.379	396	=33.9(	95)	1.3986	28.851	977	6.027	5890	1.824	0.10507	26.570	0.9873	4960	9.618	186.7		
SPIKE TIP NS		4	0 0															
0.600	18.050	2962	659.4(	785)	1.2948	28.851	2571											
0.600	16.361	2896	639.6(	766)	1.2968	28.851	2544	0.392	996	2.081	0.10507	26.570	0.9873	4960	1.627	186.7		
INLET THROAT		5	0 3															
40.400	306.013	2912	644.1(	770)	1.2965	28.851	2550											
40.400	15.225	1394	214.8(	344)	1.3550	28.851	1804	2.569	4635	1.880	0.94482	26.947	0.1114	4316	68.058	160.2		
INLET UPNRSK		6	0 3															
40.400	306.013	2912	644.1(	770)	1.2965	28.851	2550											
40.400	13.085	1340	200.5(	330)	1.3582	28.851	1771	2.660	4711	1.880	0.85893	26.947	0.1225	4357	62.890	161.7		
INLET DNNRSK		7	0 4															
40.400	123.609	2912	644.1(	770)	1.2965	28.851	2550											
40.400	106.393	2813	614.6(	742)	1.2995	28.851	2510	0.485	1216	1.943	0.85893	26.947	0.1225	4357	16.236	161.7		
COMBUSTOR	0	8	1 3															
40.410	305.431	2911	644.1(	770)	1.2965	28.851	2550											
40.410	15.238	1395	215.0(	344)	1.3549	28.851	1805	2.567	4634	1.881	0.94470	26.947	0.1114	4316	68.028	160.1		
COMBUSTOR	0	9	2 21															
41.300	181.326	2875	662.0(	830)	1.3000	26.319	2657											
41.300	20.396	1690	292.5(	463)	1.3419	26.319	2070	2.077	4300	2.064	0.95378	27.152	0.1111	4210	63.742	155.0	0.26	0.07
COMBUSTOR	0	10	3 21															
41.310	195.665	2797	662.0(	806)	1.3035	26.237	2629											
41.310	20.447	1607	293.0(	439)	1.3467	26.237	2025	2.122	4297	2.051	0.95357	27.152	0.1112	4209	63.678	155.0	0.26	0.01
COMBUSTOR	0	11	4 21															
41.375	195.709	2785	661.7(	802)	1.3041	26.225	2624											
41.375	20.783	1605	296.2(	439)	1.3469	26.225	2025											
								2.112	4276	2.049	0.95501	27.152	0.1110	4200	63.465	154.7	0.26	0.00
COMBUSTOR	0	12	5 3															
41.500	185.140	2814	661.0(	811)	1.3027	26.258	2635											
41.500	22.541	1683	309.0(	461)	1.3429	26.258	2069	2.029	4197	2.056	0.95523	27.152	0.1110	4183	62.304	154.0	0.26	0.03
COMBUSTOR	0	13	6 4															
42.460	137.484	3083	654.4(	893)	1.2902	26.564	2728											
42.460	31.824	2189	368.1(	611)	1.3199	26.565	2325	1.628	3785	2.101	0.94585	27.152	0.1121	4108	55.635	151.3	0.26	0.26
COMBUSTOR	0	14	7 5															
44.095	110.537	3608	639.9(1055)		1.2639	27.206	2887											
44.095	57.112	3135	477.9(	900)	1.2804	27.212	2708	1.051	2847	2.146	0.91334	27.152	0.1161	4100	40.406	151.0	0.26	0.74
COMBUSTOR	0	15	8 2															
44.310	109.989	3610	637.8(1055)		1.2637	27.215	2887											
44.310	58.661	3157	482.7(	907)	1.2795	27.221	2716	1.026	2786	2.146	0.91175	27.152	0.1163	4098	39.477	150.9	0.26	0.75
COMBUSTOR	0	16	9 2															
44.800	109.244	3588	632.7(1048)		1.2646	27.206	2879											
44.800	62.189	3181	493.6(	915)	1.2788	27.211	2726	0.968	2639	2.145	0.90820	27.152	0.1167	4086	37.242	150.5	0.26	0.74
COMBUSTOR	0	17	10 0															
44.810	109.228	3587	632.6(1048)		1.2646	27.206	2879											
44.810	62.166	3181	493.5(	915)	1.2789	27.211	2726	0.968	2639	2.145	0.90821	27.152	0.1167	4086	37.247	150.5	0.26	0.74
COMBUSTOR	0	18	11 8															
46.250	102.967	3081	647.0(1003)		1.2916	23.594	2896											
46.250	58.797	2709	510.5(	869)	1.3039	23.595	2728	0.958	2613	2.536	0.86595	27.465	0.1238	4095	35.164	149.1	0.65	0.21

READING = 0064 BLOCK = 211 TIME = 293.611 MACH 6.0 PT = 747.249 TT = 2962.2

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 2														
46.260	102.923	3082	646.9(1003)	1.2916	23.595	2896											
46.260	58.773	2710	510.4(869)	1.3038	23.596	2729	0.958	2613	2.636	0.66542	27.465	0.1239	4096	35.148	149.1	0.65	0.21
COMBUSTOR	0	20	13 4														
47.310	99.066	3317	635.2(1084)	1.2800	23.856	2975											
47.310	56.317	2925	488.5(942)	1.2932	23.857	2808	0.965	2709	2.356	0.60524	27.465	0.1332	4234	33.903	154.1	0.65	0.31
COMBUSTOR	0	21	14 2														
47.335	99.025	3321	634.9(1086)	1.2798	23.860	2976											
47.335	56.396	2930	488.5(943)	1.2930	23.862	2810	0.963	2707	2.356	0.60434	27.465	0.1333	4236	33.832	154.2	0.65	0.31
COMBUSTOR	0	22	15 4														
48.110	95.249	3547	626.8(1164)	1.2662	24.110	3046											
48.110	54.345	3143	472.3(1016)	1.2824	24.115	2883	0.965	2781	2.374	0.75036	27.465	0.1429	4363	32.427	158.9	0.65	0.49
COMBUSTOR	0	23	16 6														
48.775	89.817	3213	641.8(1165)	1.2867	21.320	3105											
48.775	44.264	2736	446.0(973)	1.3026	21.327	2882	1.086	3130	2.569	0.69899	27.786	0.1562	4463	34.001	160.6	1.06	0.83
COMBUSTOR	0	24	17 2														
48.785	89.758	3216	641.7(1166)	1.2865	21.328	3106											
48.785	44.156	2737	445.3(973)	1.3026	21.329	2883	1.088	3135	2.569	0.69808	27.786	0.1554	4465	34.009	160.7	1.06	0.83
COMBUSTOR	0	25	18 4														
49.315	87.003	3339	637.3(1213)	1.2805	21.446	3148											
49.315	38.475	2780	406.5(988)	1.2994	21.448	2894	1.175	3398	2.582	0.65287	27.786	0.1662	4572	34.480	164.6	1.06	0.26
COMBUSTOR	0	26	19 4														
50.725	79.684	3664	626.8(1339)	1.2635	21.764	3252											
50.725	31.687	3003	346.8(1070)	1.2871	21.772	2971	1.260	3743	2.612	0.55643	27.786	0.1950	4815	32.364	173.3	1.06	0.36
COMBUSTOR	0	27	20 4														
52.825	74.636	3857	613.4(1414)	1.2522	21.977	3305											
52.825	22.012	2979	237.5(1056)	1.2848	21.993	2941	1.474	4337	2.628	0.45606	27.786	0.2379	5086	30.736	183.1	1.06	0.42
COMBUSTOR	0	28	21 3														
53.325	73.921	3873	610.5(1421)	1.2511	21.999	3309											
53.325	20.337	2948	218.6(1043)	1.2856	22.017	2926	1.521	4451	2.630	0.43742	27.786	0.2480	5136	30.257	184.8	1.06	0.42
COMBUSTOR	0	29	22 4														
54.075	72.303	3919	606.4(1438)	1.2482	22.052	3321											
54.075	18.580	2944	188.2(1040)	1.2849	22.073	2919	1.567	4575	2.634	0.41233	27.786	0.2631	5203	29.313	187.2	1.06	0.44
COMBUSTOR	0	30	23 3														
54.835	71.455	3934	602.4(1444)	1.2471	22.076	3324											
54.835	16.800	2901	159.5(1022)	1.2861	22.098	2897	1.625	4708	2.635	0.38992	27.786	0.2782	5263	28.529	189.4	1.06	0.45
COMBUSTOR	0	31	24 4														
55.760	69.535	3990	597.9(1466)	1.2434	22.141	3338											
55.760	15.486	2918	135.7(1028)	1.2845	22.167	2899	1.659	4809	2.640	0.36610	27.786	0.2963	5329	27.361	191.8	1.06	0.46
COMBUSTOR	0	32	25 5														
56.260	58.190	4456	595.6(1650)	1.2083	22.617	3440											
56.260	14.776	3505	102.8(1255)	1.2539	22.712	3102	1.535	4760	2.684	0.29494	27.786	0.3678	5503	21.820	198.1	1.06	0.61
COMBUSTOR	0	33	26 5														
56.315	61.977	4106	595.4(1511)	1.2352	22.261	3366											
56.315	11.605	2909	74.3(1021)	1.2830	22.299	2885	1.770	5107	2.656	0.29401	27.786	0.3690	5507	23.333	198.2	1.06	0.50
COMBUSTOR	0	34	27 3														
56.455	61.779	4114	594.8(1515)	1.2346	22.270	3367											
56.455	11.506	2912	71.3(1022)	1.2828	22.310	2885	1.774	5118	2.657	0.29189	27.786	0.3717	5515	23.216	198.5	1.06	0.50
COMBUSTOR	0	35	28 9														
56.535	55.262	4437	594.5(1643)	1.2100	22.600	3437											
56.535	14.385	3452	129.4(1232)	1.2566	22.691	3083	1.565	4824	2.681	0.29516	27.786	0.3675	5520	22.128	198.7	1.06	0.61
COMBUSTOR	0	36	29 3														
56.815	56.064	4421	595.3(1636)	1.2114	22.586	3433											
56.815	13.987	3405	117.2(1213)	1.2569	22.674	3066	1.592	4881	2.679	0.29419	27.786	0.3688	5536	22.315	199.3	1.06	0.60
COMBUSTOR	0	37	30 4														
57.041	57.800	4357	592.3(1611)	1.2167	22.522	3421											
57.041	13.258	3281	98.3(1164)	1.2651	22.597	3022	1.645	4972	2.674	0.29374	27.786	0.3693	5548	22.695	199.7	1.06	0.58

	P	T	n	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	n	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	36	31 5														
57.765	64.456	4123	589.3(1518)	1.2342	22.492	3369											
57.765	10.920	2860	40.7(1001)	1.2843	22.532	2860	1.832	5239	2.653	0.28908	27.786	0.3753	5574	23.537	200.6	1.06	0.51
COMBUSTOR	0	39	32 7														
58.785	112.805	3416	585.8(1241)	1.2755	21.625	3165											
58.785	6.112	1722	=82.4(581)	1.5368	21.629	2301	2.514	5783	2.558	0.28724	27.786	0.3777	5585	25.613	201.0	1.06	0.31
COMBUSTOR	0	40	33 6														
60.795	53.278	4711	579.4(1751)	1.1857	22.921	3481											
60.795	16.650	3893	147.3(1404)	1.2278	23.097	3208	1.450	4650	2.692	0.29723	27.786	0.3650	5572	21.479	200.5	1.06	0.72
COMBUSTOR	0	41	34 4														
62.215	55.181	4657	574.5(1729)	1.1909	22.876	3472											
62.215	16.594	3800	134.8(1367)	1.2347	23.031	3182	1.474	4691	2.687	0.30529	27.786	0.3553	5561	22.255	200.1	1.06	0.70
COMBUSTOR	0	42	35 5														
64.679	47.992	4991	564.7(1863)	1.1578	23.246	3516											
64.679	20.759	4488	227.3(1644)	1.1735	23.532	3336	1.232	4109	2.706	0.28938	27.786	0.3749	5542	18.479	199.5	1.06	0.88
COMBUSTOR	0	43	36 5														
65.055	43.940	5082	563.0(1900)	1.1500	23.339	3529											
65.055	21.122	4669	260.9(1718)	1.1583	23.637	3373	1.153	3888	2.713	0.26903	27.786	0.4032	5539	16.255	199.4	1.06	0.97
COMBUSTOR REGEN		44	37 4														
65.055	43.940	5136	616.9(1924)	1.1481	23.265	3550											
65.055	21.971	4750	326.2(1754)	1.1546	23.562	3402	1.121	3814	2.723	0.26903	27.786	0.4032	5563	15.947	200.2	1.06	0.97
NOZZLE AE		45	38 5														
87.291	43.940	5082	563.0(1870)	1.1500	23.339	3529											
87.291	1.412	3005	=606.0(1025)	1.2622	24.082	2798	2.733	7648	2.713	0.05600	27.786	1.9371	7306	6.657	262.9	1.06	0.97
NOZZLE PO		46	39 5														
87.291	43.940	5082	563.0(1870)	1.1500	23.339	3529											
87.291	0.366	2275	=886.9(745)	1.2851	24.083	2457	3.467	8518	2.713	0.02255	27.786	4.8107	7832	2.985	281.9	1.06	0.97
NOZZLE AE REGEN		47	40 5														
87.291	43.940	5136	616.9(1924)	1.1481	23.265	3550											
87.291	1.448	3101	=567.6(1063)	1.2584	24.081	2838	2.712	7699	2.723	0.05600	27.786	1.9371	7367	6.700	265.1	1.06	0.97
NOZZLE PO REGEN		48	41 5														
87.291	43.940	5136	616.9(1924)	1.1481	23.265	3550											
87.291	0.386	2340	=862.6(769)	1.2828	24.083	2489	3.457	8604	2.723	0.02214	27.786	4.8988	7916	2.961	284.9	1.06	0.97
FICTIVE COMBUSTR		67	60 0														
65.055	306.013	5341	563.0(2006)	1.1666	23.611	3622											
65.055	0.386	1425	=1188.3(444)	1.3264	24.083	1975	4.740	9361	2.546	0.03958	27.786	2.7412	8356	5.757	300.7	1.06	1.00
FICTIVE NOZZLE		68	61 0														
87.291	25.255	4986	536.7(1860)	1.1461	23.300	3492											
87.291	1.840	3499	=398.4(1224)	1.2276	24.058	2980	2.296	6841	2.755	0.05600	27.786	1.9371	6821	5.954	245.5	1.06	0.97

READING = 0064 BLOCK = 211 TIME = 293.811 MACH 6.0 PT = 747.249 TT = 2962.2 PAGE 4

XABS	P=IB	P=OB	PDA	QOX	Q=IR	Q=OB	CANALI	P=IB/PSO	P=IR/PTO	P=OB/PSO	P=OB/PTO
6.981E=01	1.025E 00	0.000	=4.397E=01	0.000	0.000	0.000	2.470E=02	2.653E 00	1.372E=03	0.000	0.000
1.836E 01	1.025E 00	0.000	=3.414E 01	0.000	0.000	0.000	1.634E 02	2.653E 00	1.372E=03	0.000	0.000
3.070E 01	2.205E 00	0.000	=1.651E 02	0.000	0.000	0.000	5.053E 02	5.706E 00	2.951E=03	0.000	0.000
3.508E 01	3.890E 00	0.000	=3.626E 02	0.000	0.000	0.000	6.804E 02	1.007E 01	5.206E=03	0.000	0.000
3.519E 01	3.924E 00	5.700E 00	=4.282E 02	0.000	0.000	0.000	6.854E 02	1.015E 01	5.251E=03	1.475E 01	7.628E=03
3.520E 01	3.925E 00	5.668E 00	=4.282E 02	0.000	0.000	0.000	6.857E 02	1.016E 01	5.255E=03	1.467E 01	7.586E=03
3.555E 01	4.030E 00	3.800E 00	=4.360E 02	0.000	0.000	0.000	7.209E 02	1.043E 01	5.393E=03	9.834E 00	5.085E=03
3.586E 01	3.928E 00	2.125E 00	=4.506E 02	=2.582E 02	=2.582E 02	0.000	7.529E 02	1.017E 01	5.257E=03	5.499E 00	2.844E=03
3.606E 01	3.865E 00	2.917E 00	=4.606E 02	=2.610E 02	=2.610E 02	0.000	7.729E 02	1.000E 01	5.172E=03	7.549E 00	3.904E=03
3.648E 01	4.212E 00	4.021E 00	=4.792E 02	=2.674E 02	=2.674E 02	0.000	8.164E 02	1.090E 01	5.637E=03	1.196E 01	6.185E=03
3.701E 01	4.220E 00	6.772E 00	=5.027E 02	=2.855E 02	=2.758E 02	=9.471E 00	8.726E 02	1.092E 01	5.647E=03	1.753E 01	9.063E=03
3.732E 01	4.101E 00	8.050E 00	=5.141E 02	=2.957E 02	=2.810E 02	=1.263E 01	9.063E 02	1.061E 01	5.488E=03	2.085E 01	1.077E=02
3.803E 01	3.835E 00	1.320E 01	=5.276E 02	=3.128E 02	=2.933E 02	=1.948E 01	9.834E 02	9.925E 00	5.132E=03	3.436E 01	1.777E=02
3.834E 01	5.392E 00	1.561E 01	=5.259E 02	=3.220E 02	=2.995E 02	=2.248E 01	1.018E 03	1.395E 01	7.215E=03	4.040E 01	2.089E=02
3.875E 01	7.395E 00	1.547E 01	=5.267E 02	=3.354E 02	=3.091E 02	=2.629E 01	1.064E 03	1.914E 01	9.896E=03	4.004E 01	2.071E=02
3.881E 01	7.715E 00	1.545E 01	=5.268E 02	=3.377E 02	=3.108E 02	=2.690E 01	1.072E 03	1.997E 01	1.032E=02	3.998E 01	2.068E=02
3.901E 01	8.680E 00	1.568E 01	=5.265E 02	=3.449E 02	=3.162E 02	=2.871E 01	1.094E 03	2.246E 01	1.162E=02	4.058E 01	2.098E=02
3.932E 01	1.372E 01	1.605E 01	=5.318E 02	=3.577E 02	=3.261E 02	=3.160E 01	1.130E 03	3.551E 01	1.836E=02	4.154E 01	2.148E=02
3.950E 01	1.652E 01	1.387E 01	=5.387E 02	=3.654E 02	=3.322E 02	=3.319E 01	1.150E 03	4.277E 01	2.211E=02	3.589E 01	1.856E=02
3.981E 01	1.713E 01	9.950E 00	=5.540E 02	=3.802E 02	=3.442E 02	=3.598E 01	1.187E 03	4.434E 01	2.293E=02	2.575E 01	1.332E=02
4.000E 01	1.749E 01	9.886E 00	=5.678E 02	=3.896E 02	=3.520E 02	=3.759E 01	1.209E 03	4.526E 01	2.341E=02	2.558E 01	1.323E=02
4.040E 01	2.176E 01	9.748E 00	=5.961E 02	=4.119E 02	=3.699E 02	=4.200E 01	1.256E 03	5.630E 01	2.912E=02	2.523E 01	1.305E=02
4.041E 01	2.166E 01	9.745E 00	=5.968E 02	=4.125E 02	=3.704E 02	=4.214E 01	1.257E 03	5.658E 01	2.926E=02	2.522E 01	1.304E=02
4.130E 01	3.135E 01	9.438E 00	=6.854E 02	=4.993E 02	=4.147E 02	=8.462E 01	1.362E 03	8.114E 01	4.196E=02	2.443E 01	1.263E=02
4.131E 01	3.146E 01	9.435E 00	=6.865E 02	=5.006E 02	=4.152E 02	=8.544E 01	1.363E 03	8.142E 01	4.210E=02	2.442E 01	1.263E=02
4.137E 01	3.215E 01	9.412E 00	=6.942E 02	=5.096E 02	=4.187E 02	=9.093E 01	1.371E 03	8.321E 01	4.303E=02	2.436E 01	1.260E=02
4.150E 01	3.349E 01	1.159E 01	=7.089E 02	=5.279E 02	=4.255E 02	=1.024E 02	1.386E 03	8.666E 01	4.481E=02	3.000E 01	1.552E=02
4.246E 01	3.532E 01	2.832E 01	=7.672E 02	=7.078E 02	=4.844E 02	=2.235E 02	1.501E 03	9.142E 01	4.727E=02	7.330E 01	3.790E=02
4.409E 01	5.741E 01	5.681E 01	=7.494E 02	=1.102E 03	=6.162E 02	=4.855E 02	1.699E 03	1.486E 02	7.683E=02	1.470E 02	7.603E=02
4.431E 01	6.032E 01	5.700E 01	=7.484E 02	=1.158E 03	=6.367E 02	=5.216E 02	1.725E 03	1.561E 02	8.072E=02	1.475E 02	7.629E=02
4.480E 01	6.694E 01	5.744E 01	=7.535E 02	=1.295E 03	=6.859E 02	=6.092E 02	1.785E 03	1.732E 02	8.958E=02	1.487E 02	7.687E=02
4.481E 01	6.688E 01	5.745E 01	=7.538E 02	=1.298E 03	=6.869E 02	=6.110E 02	1.786E 03	1.731E 02	8.950E=02	1.487E 02	7.688E=02
4.625E 01	5.886E 01	5.673E 01	=6.707E 02	=1.729E 03	=8.309E 02	=8.984E 02	1.963E 03	1.523E 02	7.877E=02	1.920E 02	7.860E=02
4.626E 01	5.880E 01	5.674E 01	=6.699E 02	=1.732E 03	=8.319E 02	=9.006E 02	1.964E 03	1.522E 02	7.870E=02	1.520E 02	7.861E=02
4.731E 01	5.296E 01	5.968E 01	=5.192E 02	=2.054E 03	=9.296E 02	=1.124E 03	2.094E 03	1.370E 02	7.087E=02	1.544E 02	7.986E=02
4.733E 01	5.309E 01	5.970E 01	=5.164E 02	=2.061E 03	=9.319E 02	=1.129E 03	2.097E 03	1.374E 02	7.105E=02	1.545E 02	7.989E=02
4.811E 01	5.730E 01	5.139E 01	=3.797E 02	=2.283E 03	=9.999E 02	=1.283E 03	2.194E 03	1.485E 02	7.668E=02	1.330E 02	6.877E=02
4.877E 01	4.426E 01	4.426E 01	=2.315E 02	=2.454E 03	=1.055E 03	=1.398E 03	2.277E 03	1.146E 02	5.924E=02	1.146E 02	5.924E=02
4.878E 01	4.416E 01	4.416E 01	=2.292E 02	=2.456E 03	=1.056E 03	=1.400E 03	2.278E 03	1.143E 02	5.909E=02	1.143E 02	5.909E=02
4.931E 01	3.847E 01	3.847E 01	=1.150E 02	=2.578E 03	=1.099E 03	=1.480E 03	2.345E 03	9.957E 01	5.149E=02	9.957E 01	5.149E=02
5.072E 01	3.169E 01	3.169E 01	1.443E 02	=2.871E 03	=1.204E 03	=1.667E 03	2.522E 03	8.201E 01	4.241E=02	8.201E 01	4.241E=02
5.282E 01	2.201E 01	2.201E 01	4.400E 02	=3.243E 03	=1.340E 03	=1.903E 03	2.789E 03	5.697E 01	2.946E=02	5.697E 01	2.946E=02
5.332E 01	2.034E 01	2.034E 01	4.950E 02	=3.342E 03	=1.369E 03	=1.953E 03	2.852E 03	5.263E 01	2.722E=02	5.263E 01	2.722E=02
5.407E 01	1.858E 01	1.858E 01	5.703E 02	=3.436E 03	=1.409E 03	=2.027E 03	2.948E 03	4.809E 01	2.487E=02	4.809E 01	2.487E=02
5.483E 01	1.680E 01	1.680E 01	6.389E 02	=3.546E 03	=1.447E 03	=2.099E 03	3.046E 03	4.348E 01	2.248E=02	4.348E 01	2.248E=02
5.576E 01	1.549E 01	1.549E 01	7.138E 02	=3.672E 03	=1.489E 03	=2.182E 03	3.164E 03	4.008E 01	2.072E=02	4.008E 01	2.072E=02
5.626E 01	1.478E 01	1.478E 01	8.917E 02	=3.735E 03	=1.509E 03	=2.226E 03	3.209E 03	3.824E 01	1.977E=02	3.824E 01	1.977E=02
5.631E 01	8.512E 00	1.470E 01	8.958E 02	=3.741E 03	=1.511E 03	=2.231E 03	3.216E 03	2.203E 01	1.139E=02	3.804E 01	1.967E=02
5.645E 01	8.512E 00	1.450E 01	9.054E 02	=3.758E 03	=1.516E 03	=2.242E 03	3.234E 03	2.203E 01	1.139E=02	3.752E 01	1.940E=02
5.653E 01	1.439E 01	1.439E 01	9.112E 02	=3.768E 03	=1.518E 03	=2.249E 03	3.245E 03	3.723E 01	1.925E=02	3.723E 01	1.925E=02
5.681E 01	1.399E 01	1.399E 01	9.297E 02	=3.801E 03	=1.528E 03	=2.273E 03	3.280E 03	3.620E 01	1.872E=02	3.620E 01	1.872E=02
5.704E 01	1.326E 01	1.326E 01	9.429E 02	=3.827E 03	=1.535E 03	=2.293E 03	3.309E 03	3.431E 01	1.774E=02	3.431E 01	1.774E=02
5.770E 01	1.092E 01	1.092E 01	9.757E 02	=3.910E 03	=1.556E 03	=2.355E 03	3.402E 03	2.826E 01	1.461E=02	2.826E 01	1.461E=02
5.878E 01	6.112E 00	6.112E 00	9.954E 02	=4.006E 03	=1.580E 03	=2.428E 03	3.512E 03	1.582E 01	8.180E=03	1.582E 01	8.180E=03
6.079E 01	1.665E 01	1.665E 01	9.981E 02	=4.166E 03	=1.617E 03	=2.569E 03	3.790E 03	4.309E 01	2.228E=02	4.309E 01	2.228E=02
6.221E 01	1.659E 01	1.659E 01	9.981E 02	=4.322E 03	=1.645E 03	=2.677E 03	3.972E 03	4.294E 01	2.221E=02	4.294E 01	2.221E=02

READING = 0064 BLOCK = 211 TIME = 293.811 MACH 6.0 P1 = 747.249 T1 = 2962.6 PAGE 5

XABS	P-1B	P-0B	PDA	QUX	Q-1B	Q-0B	CA,ALL	P-1B/P1S	P-1B/P1O	P-0B/P1S	P-0B/P1O
6.468E 01	2.076E 01	2.076E 01	9.961E 02	-4.595E 03	-1.716E 03	-2.876E 03	4.289E 03	5.372E 01	2.778E-02	5.372E 01	2.778E-02
6.505E 01	2.085E 01	2.139E 01	9.981E 02	-4.642E 03	-1.730E 03	-2.912E 03	4.337E 03	5.396E 01	2.790E-02	5.537E 01	2.863E-02
6.509E 01	2.085E 01	2.146E 01	9.981E 02	-4.647E 03	-1.731E 03	-2.915E 03	4.342E 03	5.396E 01	2.790E-02	5.554E 01	2.872E-02
6.529E 01	1.982E 01	2.180E 01	9.981E 02	-4.671E 03	-1.739E 03	-2.932E 03	4.368E 03	5.129E 01	2.652E-02	5.642E 01	2.917E-02
6.695E 01	1.127E 01	9.250E 00	1.171E 03	-4.840E 03	-1.790E 03	-3.050E 03	4.583E 03	2.917E 01	1.508E-02	2.394E 01	1.238E-02
6.762E 01	8.199E 00	9.135E 00	1.363E 03	-4.894E 03	-1.806E 03	-3.088E 03	4.665E 03	2.122E 01	1.097E-02	2.364E 01	1.222E-02
6.839E 01	4.670E 00	6.952E 00	1.561E 03	-4.953E 03	-1.821E 03	-3.132E 03	4.760E 03	1.209E 01	6.250E-03	1.799E 01	9.303E-03
6.911E 01	3.658E 00	4.910E 00	1.690E 03	-5.009E 03	-1.833E 03	-3.176E 03	4.848E 03	9.466E 00	4.895E-03	1.271E 01	6.571E-03
6.972E 01	2.800E 00	4.187E 00	1.773E 03	-5.055E 03	-1.840E 03	-3.215E 03	4.922E 03	7.246E 00	3.747E-03	1.083E 01	5.603E-03
7.067E 01	1.974E 00	3.060E 00	1.867E 03	-5.120E 03	-1.850E 03	-3.271E 03	5.036E 03	5.108E 00	2.642E-03	7.919E 00	4.095E-03
7.110E 01	1.600E 00	2.802E 00	1.899E 03	-5.146E 03	-1.853E 03	-3.294E 03	5.088E 03	4.141E 00	2.141E-03	7.252E 00	3.750E-03
7.263E 01	1.822E 00	1.885E 00	1.995E 03	-5.215E 03	-1.863E 03	-3.353E 03	5.273E 03	4.715E 00	2.438E-03	4.878E 00	2.523E-03
7.353E 01	1.952E 00	7.650E-01	2.054E 03	-5.249E 03	-1.868E 03	-3.381E 03	5.372E 03	5.052E 00	2.613E-03	1.980E 00	1.024E-03
7.354E 01	1.953E 00	7.600E-01	2.056E 03	-5.249E 03	-1.868E 03	-3.381E 03	5.372E 03	5.054E 00	2.613E-03	1.967E 00	1.017E-03
7.486E 01	2.145E 00	0.000	2.099E 03	-5.306E 03	-1.875E 03	-3.431E 03	5.424E 03	5.551E 00	2.871E-03	0.000	0.000
7.771E 01	2.110E 00	0.000	2.164E 03	-5.319E 03	-1.888E 03	-3.431E 03	5.523E 03	5.461E 00	2.824E-03	0.000	0.000
8.161E 01	1.450E 00	0.000	2.260E 03	-5.334E 03	-1.903E 03	-3.431E 03	5.628E 03	3.753E 00	1.940E-03	0.000	0.000
8.442E 01	1.380E 00	0.000	2.292E 03	-5.348E 03	-1.917E 03	-3.431E 03	5.682E 03	3.571E 00	1.847E-03	0.000	0.000
8.728E 01	1.745E 00	0.000	2.329E 03	-5.371E 03	-1.940E 03	-3.431E 03	5.705E 03	4.516E 00	2.335E-03	0.000	0.000
8.729E 01	1.746E 00	0.000	2.329E 03	-5.371E 03	-1.940E 03	-3.431E 03	5.705E 03	4.518E 00	2.336E-03	0.000	0.000

NOW ΔQ_{NOZ} = 729 B/sec

say Q_{NOZ} = 300 Btu/sec

q_{NOZ} = 0 Btu/sec

X	DRAG	CL*AG	CF	-CL
4.040E 01	1.177E 02	1.177E 02	2.164E+03	4.259E+02
4.041E 01	1.759E+01	1.179E 02	2.165E+03	4.264E+02
4.130E 01	1.762E 01	1.351E 02	2.481E+03	4.884E+02
4.131E 01	1.955E+01	1.353E 02	2.485E+03	5.224E+02
4.137E 01	1.191E 00	1.365E 02	2.394E+03	5.365E+02
4.150E 01	2.255E 00	1.388E 02	2.465E+03	5.647E+02
4.246E 01	1.664E 01	1.554E 02	2.510E+03	6.710E+02
4.409E 01	2.532E 01	1.807E 02	2.818E+03	7.906E+02
4.431E 01	5.067E 00	1.838E 02	3.059E+03	7.256E+02
4.480E 01	7.037E 00	1.900E 02	3.076E+03	7.231E+02
4.481E 01	1.358E+01	1.910E 02	3.073E+03	7.258E+02
4.625E 01	2.053E 01	2.115E 02	3.337E+03	6.652E+02
4.626E 01	1.381E+01	2.116E 02	2.962E+03	7.640E+02
4.731E 01	1.319E 01	2.248E 02	2.905E+03	7.573E+02
4.733E 01	3.138E+01	2.251E 02	3.017E+03	7.267E+02
4.811E 01	9.592E 00	2.347E 02	2.981E+03	7.170E+02
4.877E 01	8.631E 00	2.434E 02	3.266E+03	6.220E+02
4.878E 01	1.326E+01	2.435E 02	2.959E+03	6.929E+02
4.931E 01	6.669E 00	2.502E 02	2.899E+03	6.594E+02
5.072E 01	1.705E 01	2.672E 02	2.845E+03	5.867E+02
5.282E 01	2.392E 01	2.911E 02	2.848E+03	4.615E+02
5.332E 01	5.606E 00	2.967E 02	2.921E+03	4.262E+02
5.407E 01	8.301E 00	3.050E 02	2.896E+03	4.013E+02
5.483E 01	8.143E 00	3.132E 02	2.867E+03	3.736E+02
5.576E 01	9.557E 00	3.227E 02	2.865E+03	3.522E+02
5.626E 01	3.154E 00	3.259E 02	2.839E+03	3.208E+02
5.631E 01	4.665E+01	3.264E 02	3.026E+03	2.619E+02
5.645E 01	1.215E 00	3.276E 02	2.850E+03	2.755E+02
5.653E 01	7.220E+01	3.283E 02	3.372E+03	2.740E+02
5.681E 01	2.530E 00	3.308E 02	3.011E+03	2.938E+02
5.704E 01	1.947E 00	3.328E 02	2.989E+03	2.859E+02
5.776E 01	6.333E 00	3.391E 02	2.926E+03	2.565E+02
5.878E 01	9.212E 00	3.483E 02	2.787E+03	1.767E+02
6.079E 01	1.625E 01	3.646E 02	2.542E+03	3.704E+02
6.221E 01	1.125E 01	3.758E 02	3.105E+03	3.158E+02
6.468E 01	2.013E 01	3.959E 02	3.146E+03	3.385E+02
6.505E 01	2.719E 00	3.987E 02	3.343E+03	3.157E+02
6.509E 01	2.836E+01	3.969E 02	3.455E+03	3.177E+02
6.529E 01	1.445E 00	4.004E 02	3.453E+03	3.165E+02
6.695E 01	1.216E 01	4.125E 02	3.390E+03	2.274E+02
6.762E 01	4.480E 00	4.170E 02	3.378E+03	2.054E+02
6.839E 01	4.704E 00	4.217E 02	3.342E+03	1.584E+02
6.911E 01	3.751E 00	4.255E 02	3.303E+03	1.280E+02
6.972E 01	2.780E 00	4.283E 02	3.273E+03	1.104E+02
7.067E 01	3.722E 00	4.320E 02	3.219E+03	8.651E+03
7.110E 01	1.479E 00	4.335E 02	3.198E+03	7.822E+03
7.263E 01	4.786E 00	4.382E 02	3.170E+03	6.858E+03
7.353E 01	2.239E 00	4.405E 02	3.125E+03	5.408E+03
7.354E 01	3.294E+03	4.405E 02	3.125E+03	5.401E+03
7.486E 01	1.220E 00	4.417E 02	3.177E+03	7.623E+03
7.771E 01	2.609E 00	4.443E 02	3.159E+03	7.469E+03
8.161E 01	2.476E 00	4.468E 02	3.088E+03	5.598E+03
8.442E 01	1.119E 00	4.479E 02	3.067E+03	5.564E+03
8.728E 01	4.912E+01	4.484E 02	3.063E+03	6.305E+03
8.729E 01	0.000	4.484E 02	3.064E+03	6.305E+03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1791.	(LBF)
MEASURED THRUST	1964.	(LBF)
CALCULATED SPECIFIC IMPULSE	2155.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2542.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.7170	
MEASURED THRUST COEFFICIENT	0.7863	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	6878.	(LBF)
NET THRUST	1848.	(LBF)
SPECIFIC IMPULSE	2203.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.7398	

MOMENTUM AND FORCES

INLET FRICTION DRAG	117.7	(LBF)
INLET MOMENTUM CHANGE	-713.9	(LBF)
COMBUSTOR FRICTION DRAG	280.9	(LBF)
COMBUSTOR STRUT DRAG	-2.46	(LBF)
COMBUSTOR MOMENTUM CHANGE	1223.	(LBF)
NOZZLE FRICTION DRAG	49.75	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1282.	(LBF)
NOZZLE PRESSURE INTEGRAL	1331.	(LBF)
EXTERNAL FRICTION DRAG	78.14	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1702.	(LBF)
TOTAL EXTERNAL DRAG	-1780.	(LBF)
TOTAL STRUT DRAG	-2.46	(LBF)
CAVITY FORCE	-157.	(LBF)
CALCULATED LOAD CELL FORCE	-1566.	(LBF)
MEASURED LOAD CELL FORCE	-1393.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0,	-168.4,	-124.7,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3148	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.194	(IN)
NOZZLE SHROUD TRAILING EDGE	73.519	(IN)
NOZZLE PLUG TRAILING EDGE	87.291	(IN)
STRUT LEADING EDGE	56.455	(IN)
STRUT TRAILING EDGE	65.055	(IN)
COMBUSTOR EXIT	65.055	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9873	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1631	
DELTA PT2	0.1171	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4095	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1654	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8962	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9057	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9415	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8897	
ENTHALPY AT P0 - SUPERSONIC	-8.09	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	27.76	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0311	
EQUIVALENCE RATIO	1.060	
COMBUSTOR EFFICIENCY	0.969	
TOTAL PRESSURE RATIO	0.1436	
COMBUSTOR EFFECTIVENESS	0.8704	
INJECTOR DISCHARGE COEFFICIENTS	0.7439,	0.7769, 0.7003,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CB	0.9336
NOZZLE COEFFICIENT - CT	0.8464
PROCESS EFFICIENCY	0.8248
KINETIC ENERGY EFFICIENCY	0.8490

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.300	B
1C	44.300	
2A	46.775	D
2C	46.250	A
3A	54.065	
3B	56.250	
4	44.800	

Reading 65

t = 164.03 sec.

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	M		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	Y	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	749.749	5035	681.4	(807)	1.2926	28.852	2600											
0.000	0.399	414	-29.6	(100)	1.3989	28.851	999	5.968	5964	1.831	0.10730	26.953	0.9807	5097	9.945	189.1		
SPIKE TIP NS		2	0	3														
0.600	18.075	5034	681.4	(807)	1.2925	28.851	2600											
0.600	16.256	2962	659.5	(785)	1.2948	28.851	2571	0.407	1047	2.088	0.10730	26.953	0.9807	4961	1.746	184.1		
WIND TUNNEL		3	0	0														
0.000	749.749	5035	681.4	(807)	1.2926	28.852	2600											
0.000	0.380	409	-30.9	(98)	1.3988	28.851	993	6.015	5970	1.831	0.10377	26.067	0.9807	4953	9.628	189.2		
SPIKE TIP NS		4	0	0														
0.600	18.075	5034	681.4	(807)	1.2925	28.851	2600											
0.600	16.390	2968	661.1	(787)	1.2946	28.851	2573	0.391	1006	2.088	0.10377	26.067	0.9807	4933	1.623	189.2		
INLET THROAT		5	0	4														
40.400	300.243	2999	670.5	(796)	1.2938	28.851	2586											
40.400	15.930	1467	235.9	(363)	1.3507	28.851	1848	2.550	4674	1.891	0.94777	26.953	0.1110	4369	66.847	162.1		
INLET UPNRSK		6	0	3														
40.400	300.243	2999	670.5	(796)	1.2938	28.851	2586											
40.400	13.687	1410	218.9	(348)	1.3540	28.851	1814	2.621	4754	1.891	0.86161	26.953	0.1221	4411	63.657	163.6		
INLET DNNRSK		7	0	4														
40.400	125.405	2999	670.5	(796)	1.2937	28.851	2586											
40.400	107.781	2897	639.8	(766)	1.2969	28.851	2545	0.487	1240	1.951	0.86161	26.953	0.1221	4411	16.609	163.6		
COMBUSTOR	0	8	1	4														
40.410	299.522	2999	670.5	(796)	1.2938	28.851	2586											
40.410	15.949	1468	234.3	(364)	1.3507	28.851	1849	2.527	4672	1.891	0.94765	26.953	0.1110	4368	66.809	162.1		
COMBUSTOR	0	9	2	4														
41.324	236.453	2990	667.9	(794)	1.2940	28.851	2582											
41.324	18.524	1616	273.9	(403)	1.3427	28.851	1934	2.296	4440	1.906	0.95008	26.953	0.1108	4245	65.561	157.5		
COMBUSTOR	0	10	3	4														
41.389	232.013	2990	667.7	(793)	1.2940	28.851	2582											
41.389	18.734	1627	276.9	(406)	1.3421	28.851	1940	2.279	4422	1.907	0.95049	26.953	0.1107	4236	65.324	157.2		
COMBUSTOR	0	11	4	3														
41.500	226.001	2988	667.3	(793)	1.2941	28.851	2581											
41.500	19.078	1646	282.0	(411)	1.3412	28.851	1951	2.251	4391	1.909	0.95023	26.953	0.1107	4220	64.647	156.6		
COMBUSTOR	0	12	5	5														
42.460	197.700	2975	663.3	(789)	1.2945	28.851	2576											
42.460	20.511	1726	305.6	(433)	1.3374	28.851	1994	2.127	4242	1.917	0.94134	26.953	0.1118	4141	62.061	153.6		
COMBUSTOR	0	13	6	4														
44.109	185.032	2948	655.1	(781)	1.2953	28.851	2565											
44.109	20.034	1727	303.9	(433)	1.3374	28.851	1995	2.101	4192	1.919	0.90796	26.953	0.1159	4106	59.148	152.4		
COMBUSTOR	0	14	7	4														
44.310	183.950	2944	654.0	(780)	1.2954	28.851	2564											
44.310	20.050	1728	304.1	(433)	1.3373	28.851	1995	2.097	4185	1.919	0.90674	26.953	0.1161	4101	58.966	152.2		
COMBUSTOR	0	15	8	4														
44.800	180.514	2936	651.6	(778)	1.2957	28.851	2561											
44.800	20.138	1733	305.5	(435)	1.3371	28.851	1998	2.083	4162	1.919	0.90323	26.953	0.1165	4088	58.421	151.7		
COMBUSTOR	0	16	9	4														
44.824	180.334	2936	651.5	(778)	1.2957	28.851	2560											
44.824	20.150	1733	305.6	(435)	1.3371	28.851	1998	2.082	4161	1.919	0.90323	26.953	0.1165	4087	58.402	151.6		
COMBUSTOR	0	17	10	4														
46.260	164.950	2915	645.2	(771)	1.2963	28.851	2552											
46.260	19.274	1739	307.2	(436)	1.3368	28.851	2001	2.055	4113	1.923	0.85116	26.953	0.1236	4056	54.401	150.5		
COMBUSTOR	0	18	11	4														
47.310	151.882	2901	641.0	(767)	1.2968	28.851	2546											
47.310	17.983	1735	306.2	(436)	1.3370	28.851	2000	2.047	4093	1.928	0.79187	26.953	0.1329	4041	50.365	149.9		

READING = 0065 BLOCK = 60 TIME = 164.033 MACH 6.0 PT = 749.749 TT = 3034.6

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	4														
47.349	151.672	2901	640.6	(767)	1.2968	28.851	2546											
47.349	17.885	1734	305.9	(435)	1.3370	28.851	1999	2.048	4094	1.928	0.78634	26.953	0.1335	4041	50.155	149.9		
COMBUSTOR	0	20	13	5														
48.110	143.678	2891	637.9	(764)	1.2971	28.851	2542											
48.110	16.507	1716	300.8	(430)	1.3379	28.851	1989	2.065	4107	1.930	0.73779	26.953	0.1426	4044	47.089	150.0		
COMBUSTOR	0	21	14	4														
48.799	138.219	2883	635.5	(762)	1.2973	28.851	2539											
48.799	14.594	1674	289.6	(419)	1.3398	28.851	1966	2.116	4161	1.932	0.67715	26.953	0.1554	4066	43.785	150.9		
COMBUSTOR	0	22	15	3														
49.329	135.470	2877	633.9	(760)	1.2975	28.851	2536											
49.329	13.173	1636	279.2	(409)	1.3417	28.851	1945	2.166	4213	1.933	0.63330	26.953	0.1662	4090	41.459	151.7		
COMBUSTOR	0	23	16	5														
50.739	126.814	2864	629.9	(757)	1.2979	28.851	2531											
50.739	10.479	1561	259.1	(388)	1.3455	28.851	1903	2.264	4308	1.936	0.53974	26.953	0.1950	4132	36.132	153.3		
COMBUSTOR	0	24	17	4														
52.839	115.150	2848	625.0	(752)	1.2984	28.851	2524											
52.839	7.984	1483	238.1	(367)	1.3498	28.851	1857	2.369	4400	1.941	0.44238	26.953	0.2379	4172	30.249	154.8		
COMBUSTOR	0	25	18	4														
53.339	113.785	2844	623.9	(751)	1.2986	28.851	2523											
53.339	7.505	1461	232.5	(362)	1.3510	28.851	1845	2.399	4426	1.942	0.42430	26.953	0.2480	4184	29.184	155.2		
COMBUSTOR	0	26	19	4														
54.089	111.602	2839	622.5	(749)	1.2987	28.851	2521											
54.089	6.887	1434	225.1	(354)	1.3527	28.851	1828	2.439	4459	1.942	0.39996	26.953	0.2631	4200	27.716	155.8		
COMBUSTOR	0	27	20	4														
54.849	109.057	2835	621.1	(748)	1.2989	28.851	2519											
54.849	6.371	1411	219.0	(348)	1.3540	28.851	1814	2.472	4485	1.943	0.37822	26.953	0.2782	4211	26.364	156.3		
COMBUSTOR	0	28	21	5														
55.760	105.740	2830	619.6	(746)	1.2990	28.851	2517											
55.760	5.864	1389	213.3	(343)	1.3553	28.851	1801	2.504	4509	1.945	0.35545	26.953	0.2961	4222	24.908	156.6		
COMBUSTOR	0	29	22	4														
56.274	92.242	2828	618.9	(746)	1.2991	28.851	2516											
56.274	4.492	1341	200.7	(330)	1.3582	28.851	1772	2.582	4574	1.954	0.28610	26.953	0.3678	4255	20.538	157.9		
COMBUSTOR	0	30	23	5														
56.329	92.121	2827	618.9	(746)	1.2991	28.851	2516											
56.329	4.473	1340	200.5	(330)	1.3583	28.851	1771	2.584	4576	1.954	0.28524	26.953	0.3689	4256	20.283	157.9		
COMBUSTOR	0	31	24	5														
56.469	91.786	2827	618.7	(746)	1.2991	28.851	2516											
56.469	4.430	1337	199.8	(329)	1.3584	28.851	1769	2.588	4578	1.955	0.28314	26.953	0.3717	4257	20.145	157.9		
COMBUSTOR	0	32	25	4														
56.549	93.011	2826	618.6	(745)	1.2991	28.851	2515											
56.549	4.474	1336	199.5	(329)	1.3585	28.851	1768	2.590	4580	1.954	0.28636	26.953	0.3675	4258	20.380	158.0		
COMBUSTOR	0	33	26	4														
56.829	93.223	2825	618.3	(745)	1.2991	28.851	2515											
56.829	4.441	1332	198.4	(328)	1.3587	28.851	1766	2.595	4583	1.953	0.28536	26.953	0.3688	4259	20.327	158.0		
COMBUSTOR	0	34	27	4														
57.055	93.433	2824	618.0	(745)	1.2992	28.851	2515											
57.055	4.421	1329	197.7	(327)	1.3589	28.851	1764	2.600	4586	1.953	0.28483	26.953	0.3695	4260	20.300	158.1		
COMBUSTOR	0	35	28	3														
57.779	93.250	2822	617.1	(744)	1.2993	28.851	2513											
57.779	4.313	1320	195.2	(325)	1.3595	28.851	1758	2.613	4595	1.953	0.28041	26.953	0.3753	4264	20.024	158.2		
COMBUSTOR	0	36	29	3														
58.799	93.495	2818	616.1	(743)	1.2994	28.851	2512											
58.799	4.257	1312	193.3	(323)	1.3599	28.851	1754	2.623	4600	1.952	0.27862	26.953	0.3777	4265	19.916	158.2		
COMBUSTOR	0	37	30	5														
60.809	94.490	2812	614.4	(741)	1.2996	28.851	2510											
60.809	4.459	1322	195.7	(325)	1.3594	28.851	1760	2.601	4577	1.951	0.28832	26.953	0.3650	4251	20.508	157.7		

READING # 0065 BLOCK # 60 TIME = 164.053 MACH 6.0 PI = 749.749 TI = 3034.6 PAGE 3

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	n/A	n	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 5														
62.229	95.195	2809	613.4(740)	1.2997	28.851	2508											
62.229	4.627	1330	198.0(327)	1.3588	28.851	1765	2.585	4559	1.950	0.29613	26.953	0.3553	4241	20.983	157.3		
COMBUSTOR	0	39	32 5														
64.693	87.445	2803	611.5(738)	1.2999	28.851	2506											
64.693	4.460	1344	201.5(331)	1.3580	28.851	1773	2.554	4529	1.955	0.28070	26.953	0.3749	4223	19.759	156.7		
COMBUSTOR	0	40	33 3														
65.069	80.942	2802	611.1(738)	1.2999	28.851	2505											
65.069	4.155	1345	201.9(331)	1.3579	28.851	1774	2.550	4525	1.961	0.26096	26.953	0.4032	4220	18.352	156.6		
NOZZLE AE		41	34 3														
87.305	80.942	2802	611.1(738)	1.2999	28.851	2505											
87.305	0.378	696	38.7(168)	1.3946	28.851	1293	4.138	5352	1.960	0.05432	26.953	1.9371	4671	4.519	173.3		
NOZZLE PO		42	55 3														
87.305	80.942	2802	611.1(738)	1.2999	28.851	2505											
87.305	0.399	707	41.2(171)	1.3942	28.851	1303	4.098	5340	1.961	0.05631	26.953	1.8686	4665	4.674	173.1		
FICTIVE COMBUSTR	62	55	0														
65.069	300.243	2801	611.1(738)	1.2999	28.851	2505											
65.069	0.399	487	-12.0(117)	1.3991	28.851	1083	5.154	5584	1.870	0.08549	26.953	1.2309	4804	7.419	178.2		
FICTIVE NOZZLE	63	56	0														
87.305	242.556	2775	603.2(730)	1.3007	28.851	2494											
87.305	0.226	434	-24.7(105)	1.3990	28.851	1023	5.477	5606	1.882	0.05432	26.953	1.9371	4808	4.732	178.4		

READING = 0065 BLOCK = 60 TIME = 164.033 MACH 6.0 PI = 749.749 TT = 3034.6

XABS	P-IB	P-OB	PDA	Q0X	Q-IB	Q-OB	CAWALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OB/PI0
6.981E-01	1.050E 00	0.000	-4.408E-01	0.000	0.000	0.000	2.470E-02	2.630E 00	1.400E-03	0.000	0.000
1.836E 01	1.050E 00	0.000	-3.496E 01	0.000	0.000	0.000	1.634E 02	2.630E 00	1.400E-03	0.000	0.000
3.070E 01	2.170E 00	0.000	-1.655E 02	0.000	0.000	0.000	5.053E 02	5.436E 00	2.894E-03	0.000	0.000
3.508E 01	3.880E 00	0.000	-3.615E 02	0.000	0.000	0.000	6.804E 02	9.720E 00	5.175E-03	0.000	0.000
3.521E 01	3.899E 00	5.885E 00	-4.299E 02	0.000	0.000	0.000	6.860E 02	9.767E 00	5.200E-03	1.474E 01	7.849E-03
3.521E 01	3.900E 00	5.851E 00	-4.299E 02	0.000	0.000	0.000	6.863E 02	9.769E 00	5.201E-03	1.466E 01	7.803E-03
3.555E 01	3.950E 00	3.926E 00	-4.365E 02	0.000	0.000	0.000	7.201E 02	9.895E 00	5.268E-03	9.836E 00	5.237E-03
3.588E 01	3.892E 00	2.050E 00	-4.512E 02	-1.385E 02	-1.385E 02	0.000	7.535E 02	9.750E 00	5.191E-03	5.135E 00	2.734E-03
3.606E 01	3.860E 00	2.785E 00	-4.606E 02	-1.400E 02	-1.400E 02	0.000	7.721E 02	9.670E 00	5.148E-03	6.976E 00	3.715E-03
3.648E 01	4.201E 00	4.490E 00	-4.796E 02	-1.434E 02	-1.434E 02	0.000	8.157E 02	1.052E 01	5.603E-03	1.125E 01	5.988E-03
3.701E 01	4.165E 00	6.641E 00	-5.032E 02	-1.646E 02	-1.479E 02	-1.666E 01	8.718E 02	1.043E 01	5.555E-03	1.664E 01	8.857E-03
3.734E 01	4.052E 00	7.975E 00	-5.150E 02	-1.734E 02	-1.509E 02	-2.252E 01	9.070E 02	1.015E 01	5.405E-03	1.998E 01	1.064E-02
3.803E 01	3.815E 00	1.326E 01	-5.279E 02	-1.920E 02	-1.574E 02	-3.457E 01	9.825E 02	9.557E 00	5.088E-03	3.322E 01	1.769E-02
3.836E 01	5.357E 00	1.577E 01	-5.298E 02	-2.015E 02	-1.613E 02	-4.026E 01	1.019E 03	1.342E 01	7.145E-03	3.952E 01	2.104E-02
3.875E 01	7.191E 00	1.534E 01	-5.256E 02	-2.145E 02	-1.675E 02	-4.699E 01	1.063E 03	1.801E 01	9.591E-03	3.842E 01	2.046E-02
3.883E 01	7.560E 00	1.525E 01	-5.257E 02	-2.173E 02	-1.689E 02	-4.834E 01	1.072E 03	1.894E 01	1.008E-02	3.820E 01	2.034E-02
3.901E 01	8.410E 00	1.551E 01	-5.250E 02	-2.241E 02	-1.727E 02	-5.145E 01	1.093E 03	2.107E 01	1.122E-02	3.885E 01	2.068E-02
3.934E 01	1.378E 01	1.597E 01	-5.302E 02	-2.377E 02	-1.806E 02	-5.705E 01	1.131E 03	3.452E 01	1.838E-02	4.003E 01	2.131E-02
3.950E 01	1.641E 01	1.228E 01	-5.374E 02	-2.449E 02	-1.851E 02	-5.978E 01	1.150E 03	4.111E 01	2.189E-02	3.077E 01	1.638E-02
3.983E 01	1.702E 01	4.750E 00	-5.620E 02	-2.608E 02	-1.956E 02	-6.526E 01	1.188E 03	4.263E 01	2.270E-02	1.190E 01	6.335E-03
4.000E 01	1.733E 01	4.595E 00	-5.779E 02	-2.698E 02	-2.018E 02	-6.807E 01	1.208E 03	4.342E 01	2.312E-02	1.151E 01	6.129E-03
4.040E 01	2.032E 01	4.836E 00	-6.170E 02	-2.922E 02	-2.174E 02	-7.482E 01	1.259E 03	5.091E 01	2.710E-02	1.061E 01	5.648E-03
4.041E 01	2.040E 01	4.226E 00	-6.179E 02	-2.928E 02	-2.178E 02	-7.500E 01	1.256E 03	5.109E 01	2.720E-02	1.059E 01	5.636E-03
4.132E 01	2.722E 01	3.401E 00	-7.236E 02	-3.618E 02	-2.582E 02	-1.036E 02	1.364E 03	6.819E 01	3.631E-02	8.519E 00	4.536E-03
4.139E 01	2.771E 01	3.342E 00	-7.318E 02	-3.679E 02	-2.613E 02	-1.066E 02	1.372E 03	6.941E 01	3.695E-02	8.372E 00	4.458E-03
4.150E 01	2.854E 01	3.740E 00	-7.460E 02	-3.786E 02	-2.668E 02	-1.119E 02	1.385E 03	7.149E 01	3.806E-02	9.369E 00	4.988E-03
4.246E 01	1.046E 01	7.174E 00	-8.070E 02	-4.872E 02	-3.163E 02	-1.709E 02	1.500E 03	2.621E 01	1.395E-02	1.797E 01	9.568E-03
4.411E 01	1.480E 01	1.307E 01	-8.123E 02	-7.088E 02	-4.020E 02	-3.068E 02	1.700E 03	3.706E 01	1.973E-02	3.275E 01	1.743E-02
4.431E 01	1.532E 01	1.278E 01	-8.136E 02	-7.368E 02	-4.121E 02	-3.248E 02	1.724E 03	3.839E 01	2.044E-02	3.201E 01	1.704E-02
4.480E 01	1.661E 01	1.206E 01	-8.189E 02	-8.016E 02	-4.361E 02	-3.655E 02	1.784E 03	4.162E 01	2.216E-02	3.022E 01	1.609E-02
4.482E 01	1.660E 01	1.203E 01	-8.193E 02	-8.046E 02	-4.373E 02	-3.674E 02	1.787E 03	4.160E 01	2.215E-02	3.014E 01	1.605E-02
4.626E 01	1.611E 01	9.937E 00	-8.258E 02	-9.747E 02	-5.042E 02	-4.704E 02	1.963E 03	4.037E 01	2.149E-02	2.489E 01	1.325E-02
4.731E 01	1.576E 01	8.407E 00	-8.238E 02	-1.089E 03	-5.498E 02	-5.391E 02	2.093E 03	3.947E 01	2.102E-02	2.106E 01	1.121E-02
4.735E 01	1.552E 01	8.350E 00	-8.229E 02	-1.093E 03	-5.514E 02	-5.416E 02	2.098E 03	3.888E 01	2.070E-02	2.092E 01	1.114E-02
4.811E 01	1.090E 01	9.481E 00	-8.088E 02	-1.171E 03	-5.827E 02	-5.885E 02	2.193E 03	2.731E 01	1.454E-02	2.375E 01	1.265E-02
4.880E 01	1.050E 01	1.050E 01	-7.763E 02	-1.235E 03	-6.097E 02	-6.255E 02	2.279E 03	2.631E 01	1.401E-02	2.631E 01	1.401E-02
4.933E 01	1.129E 01	1.129E 01	-7.462E 02	-1.280E 03	-6.297E 02	-6.506E 02	2.346E 03	2.829E 01	1.506E-02	2.829E 01	1.506E-02
5.074E 01	4.612E 00	4.612E 00	-6.874E 02	-1.386E 03	-6.795E 02	-7.070E 02	2.523E 03	1.155E 01	6.152E-03	1.155E 01	6.152E-03
5.284E 01	6.525E 00	6.525E 00	-6.261E 02	-1.520E 03	-7.445E 02	-7.752E 02	2.789E 03	1.635E 01	8.703E-03	1.635E 01	8.703E-03
5.334E 01	6.025E 00	6.025E 00	-6.098E 02	-1.548E 03	-7.584E 02	-7.897E 02	2.853E 03	1.509E 01	8.036E-03	1.509E 01	8.036E-03
5.409E 01	5.081E 00	5.081E 00	-5.883E 02	-1.588E 03	-7.781E 02	-8.099E 02	2.949E 03	1.273E 01	6.777E-03	1.273E 01	6.777E-03
5.485E 01	4.125E 00	4.125E 00	-5.704E 02	-1.625E 03	-7.967E 02	-8.282E 02	3.046E 03	1.033E 01	5.502E-03	1.033E 01	5.502E-03
5.576E 01	3.469E 00	3.469E 00	-5.531E 02	-1.664E 03	-8.171E 02	-8.473E 02	3.164E 03	8.691E 00	4.627E-03	8.691E 00	4.627E-03
5.627E 01	3.099E 00	3.099E 00	-5.175E 02	-1.683E 03	-8.267E 02	-8.566E 02	3.209E 03	7.764E 00	4.134E-03	7.764E 00	4.134E-03
5.633E 01	1.650E 00	3.060E 00	-5.166E 02	-1.685E 03	-8.275E 02	-8.575E 02	3.216E 03	4.133E 00	2.201E-03	7.665E 00	4.081E-03
5.647E 01	1.650E 00	2.959E 00	-5.147E 02	-1.690E 03	-8.297E 02	-8.599E 02	3.234E 03	4.133E 00	2.201E-03	7.413E 00	3.947E-03
5.655E 01	2.902E 00	2.902E 00	-5.135E 02	-1.692E 03	-8.309E 02	-8.613E 02	3.244E 03	7.269E 00	3.870E-03	7.269E 00	3.870E-03
5.683E 01	2.700E 00	2.700E 00	-5.099E 02	-1.701E 03	-8.351E 02	-8.662E 02	3.280E 03	6.764E 00	3.601E-03	6.764E 00	3.601E-03
5.705E 01	2.925E 00	2.925E 00	-5.071E 02	-1.706E 03	-8.382E 02	-8.702E 02	3.309E 03	7.327E 00	3.901E-03	7.327E 00	3.901E-03
5.778E 01	3.645E 00	3.645E 00	-4.982E 02	-1.731E 03	-8.476E 02	-8.834E 02	3.402E 03	9.131E 00	4.862E-03	9.131E 00	4.862E-03
5.880E 01	3.562E 00	3.562E 00	-4.899E 02	-1.760E 03	-8.585E 02	-9.020E 02	3.532E 03	8.924E 00	4.752E-03	8.924E 00	4.752E-03
6.081E 01	1.575E 00	1.575E 00	-4.893E 02	-1.806E 03	-8.740E 02	-9.321E 02	3.790E 03	3.945E 00	2.101E-03	3.945E 00	2.101E-03
6.223E 01	1.237E 00	1.237E 00	-4.893E 02	-1.832E 03	-8.836E 02	-9.489E 02	3.972E 03	3.100E 00	1.651E-03	3.100E 00	1.651E-03
6.469E 01	2.588E 00	2.588E 00	-4.893E 02	-1.865E 03	-9.048E 02	-9.797E 02	4.289E 03	6.482E 00	3.451E-03	6.482E 00	3.451E-03
6.507E 01	4.275E 00	2.794E 00	-4.893E 02	-1.893E 03	-9.086E 02	-9.846E 02	4.337E 03	1.071E 01	5.702E-03	6.996E 00	3.726E-03
6.511E 01	4.275E 00	2.815E 00	-4.893E 02	-1.894E 03	-9.090E 02	-9.851E 02	4.342E 03	1.071E 01	5.702E-03	7.054E 00	3.755E-03

READING = 0065 BLOCK = 60 TIME = 164.033 MACH 6.0 PI = 749.749 TT = 5034.6 PAGE 5

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CA-ALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.531E 01	4.078E 00	2.925E 00	-4.893E 02	-1.899E 03	-9.110E 02	-9.877E 02	4.368E 03	1.021E 01	5.439E-03	7.327E 00	3.901E-03
6.697E 01	2.440E 00	5.360E 00	-4.470E 02	-1.933E 03	-9.251E 02	-1.008E 03	4.583E 03	6.112E 00	3.254E-03	1.343E 01	7.149E-03
6.764E 01	1.970E 00	4.402E 00	-3.755E 02	-1.946E 03	-9.294E 02	-1.017E 03	4.665E 03	4.935E 00	2.628E-03	1.103E 01	5.872E-03
6.841E 01	1.430E 00	3.192E 00	-3.034E 02	-1.961E 03	-9.338E 02	-1.027E 03	4.760E 03	3.582E 00	1.907E-03	7.996E 00	4.257E-03
6.913E 01	1.787E 00	2.060E 00	-2.499E 02	-1.976E 03	-9.372E 02	-1.038E 03	4.848E 03	4.477E 00	2.384E-03	5.160E 00	2.748E-03
6.974E 01	2.090E 00	2.109E 00	-2.060E 02	-1.989E 03	-9.396E 02	-1.049E 03	4.922E 03	5.236E 00	2.788E-03	5.283E 00	2.813E-03
7.069E 01	1.415E 00	2.185E 00	-1.441E 02	-2.009E 03	-9.430E 02	-1.066E 03	5.036E 03	3.546E 00	1.888E-03	5.474E 00	2.914E-03
7.112E 01	1.110E 00	1.973E 00	-1.210E 02	-2.017E 03	-9.443E 02	-1.073E 03	5.088E 03	2.781E 00	1.480E-03	4.943E 00	2.632E-03
7.265E 01	9.187E-01	1.220E 00	-6.028E 01	-2.041E 03	-9.486E 02	-1.093E 03	5.273E 03	2.302E 00	1.225E-03	3.056E 00	1.627E-03
7.280E 01	9.000E-01	1.217E 00	-5.572E 01	-2.043E 03	-9.489E 02	-1.094E 03	5.290E 03	2.255E 00	1.200E-03	3.050E 00	1.624E-03
7.355E 01	8.766E-01	1.205E 00	-1.866E 01	-2.054E 03	-9.508E 02	-1.103E 03	5.374E 03	2.196E 00	1.169E-03	3.019E 00	1.607E-03
7.355E 01	8.764E-01	1.205E 00	-1.638E 01	-2.054E 03	-9.508E 02	-1.103E 03	5.375E 03	2.196E 00	1.169E-03	3.018E 00	1.607E-03
7.488E 01	6.350E-01	0.000	1.698E 00	-2.076E 03	-9.538E 02	-1.122E 03	5.426E 03	2.092E 00	1.114E-03	0.000	0.000
7.773E 01	8.400E-01	0.000	3.519E 01	-2.082E 03	-9.594E 02	-1.122E 03	5.525E 03	2.104E 00	1.120E-03	0.000	0.000
8.163E 01	1.250E 00	0.000	7.986E 01	-2.088E 03	-9.657E 02	-1.122E 03	5.630E 03	3.131E 00	1.667E-03	0.000	0.000
8.444E 01	1.045E 00	0.000	1.054E 02	-2.094E 03	-9.718E 02	-1.122E 03	5.684E 03	2.618E 00	1.394E-03	0.000	0.000
8.730E 01	1.230E 00	0.000	1.328E 02	-2.105E 03	-9.831E 02	-1.122E 03	5.707E 03	3.081E 00	1.641E-03	0.000	0.000
8.730E 01	1.230E 00	0.000	1.328E 02	-2.105E 03	-9.831E 02	-1.122E 03	5.707E 03	3.082E 00	1.641E-03	0.000	0.000

X	UDRAG	CDRAG	CF	HC
4.040E 01	1.152E 02	1.152E 02	2.219E-03	4.409E-02
4.041E 01	1.804E-01	1.154E 02	2.220E-03	4.409E-02
4.132E 01	1.659E 01	1.320E 02	2.349E-03	4.761E-02
4.139E 01	1.192E 00	1.332E 02	2.358E-03	4.787E-02
4.150E 01	2.040E 00	1.352E 02	2.374E-03	4.829E-02
4.246E 01	1.755E 01	1.528E 02	2.439E-03	4.958E-02
4.411E 01	2.956E 01	1.823E 02	2.449E-03	4.804E-02
4.431E 01	3.534E 00	1.859E 02	2.453E-03	4.805E-02
4.480E 01	8.629E 00	1.945E 02	2.464E-03	4.809E-02
4.482E 01	4.181E-01	1.949E 02	2.464E-03	4.810E-02
4.626E 01	2.464E 01	2.195E 02	2.486E-03	4.572E-02
4.731E 01	1.697E 01	2.365E 02	2.492E-03	4.262E-02
4.735E 01	5.986E-01	2.371E 02	2.491E-03	4.242E-02
4.811E 01	1.148E 01	2.486E 02	2.484E-03	3.951E-02
4.880E 01	9.677E 00	2.583E 02	2.457E-03	3.572E-02
4.933E 01	6.925E 00	2.652E 02	2.430E-03	3.291E-02
5.074E 01	1.656E 01	2.817E 02	2.377E-03	2.720E-02
5.284E 01	2.075E 01	3.025E 02	2.319E-03	2.154E-02
5.334E 01	4.375E 00	3.069E 02	2.302E-03	2.046E-02
5.409E 01	6.246E 00	3.131E 02	2.280E-03	1.905E-02
5.485E 01	5.982E 00	3.191E 02	2.263E-03	1.782E-02
5.576E 01	6.770E 00	3.259E 02	2.247E-03	1.658E-02
5.627E 01	2.309E 00	3.282E 02	2.198E-03	1.298E-02
5.633E 01	3.145E-01	3.285E 02	2.197E-03	1.293E-02
5.647E 01	7.890E-01	3.293E 02	2.195E-03	1.282E-02
5.655E 01	4.547E-01	3.297E 02	2.189E-03	1.293E-02
5.683E 01	1.587E 00	3.313E 02	2.183E-03	1.284E-02
5.705E 01	1.277E 00	3.326E 02	2.178E-03	1.278E-02
5.778E 01	4.057E 00	3.367E 02	2.167E-03	1.251E-02
5.880E 01	5.644E 00	3.423E 02	2.157E-03	1.236E-02
6.081E 01	1.125E 01	3.536E 02	2.160E-03	1.261E-02
6.223E 01	8.164E 00	3.617E 02	2.160E-03	1.317E-02
6.469E 01	1.401E 01	3.757E 02	2.191E-03	1.269E-02
6.507E 01	2.026E 00	3.778E 02	2.217E-03	1.195E-02
6.511E 01	2.003E-01	3.780E 02	2.209E-03	1.072E-02
6.531E 01	9.544E-01	3.789E 02	2.206E-03	1.061E-02
6.697E 01	8.252E 00	3.872E 02	2.218E-03	1.146E-02
6.764E 01	3.031E 00	3.902E 02	2.179E-03	9.854E-03
6.841E 01	2.990E 00	3.932E 02	2.117E-03	7.699E-03
6.913E 01	2.352E 00	3.955E 02	2.081E-03	6.682E-03
6.974E 01	1.915E 00	3.974E 02	2.094E-03	7.135E-03
7.069E 01	2.894E 00	4.003E 02	2.063E-03	6.332E-03
7.112E 01	1.188E 00	4.015E 02	2.035E-03	5.622E-03
7.265E 01	3.547E 00	4.051E 02	1.970E-03	4.241E-03
7.280E 01	2.903E-01	4.054E 02	1.968E-03	4.207E-03
7.355E 01	1.409E 00	4.068E 02	1.962E-03	4.146E-03
7.355E 01	2.683E-03	4.068E 02	1.962E-03	4.145E-03
7.488E 01	7.969E-01	4.076E 02	1.921E-03	3.491E-03
7.773E 01	1.392E 00	4.090E 02	1.911E-03	3.487E-03
8.163E 01	1.711E 00	4.107E 02	1.964E-03	4.698E-03
8.444E 01	9.481E-01	4.116E 02	1.925E-03	4.074E-03
8.730E 01	3.901E-01	4.120E 02	1.943E-03	4.596E-03
8.730E 01	0.000	4.120E 02	1.943E-03	4.597E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=293.	(LBF)
MEASURED THRUST	=399.	(LBF)
CALCULATED SPECIFIC IMPULSE	=294.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	=400.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.1151	
MEASURED THRUST COEFFICIENT	=.1567	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	0.	(LBF)
NET THRUST	0.	(LBF)
SPECIFIC IMPULSE	0.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.0000	

MOMENTUM AND FORCES

INLET FRICTION DRAG	115.2	(LBF)
INLET MOMENTUM CHANGE	=732.2	(LBF)
COMBUSTOR FRICTION DRAG	262.5	(LBF)
COMBUSTOR STRUT DRAG	13.87	(LBF)
COMBUSTOR MOMENTUM CHANGE	=149.	(LBF)
NOZZLE FRICTION DRAG	34.26	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	588.	(LBF)
NOZZLE PRESSURE INTEGRAL	622.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	=1080.	(LBF)
TOTAL STRUT DRAG	13.87	(LBF)
CAVITY FORCE	=1132.	(LBF)
CALCULATED LOAD CELL FORCE	=2506.	(LBF)
MEASURED LOAD CELL FORCE	=2612.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.5286	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.214	(IN)
NOZZLE SHROUD TRAILING EDGE	73.554	(IN)
NOZZLE PLUG TRAILING EDGE	87.305	(IN)
STRUT LEADING EDGE	56.469	(IN)
STRUT TRAILING EDGE	65.069	(IN)
COMBUSTOR EXIT	65.069	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9807	
ADDITIVE DRAG COEFFICIENT	0.0009	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1649	
DELTA PT2	0.1199	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.4005	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1673	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8940	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9042	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9455	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8946	
ENTHALPY AT P0 = SUPERSONIC	=1.64	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	34.53	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0000
EQUIVALENCE RATIO	0.000
COMBUSTOR EFFICIENCY	0.000
TOTAL PRESSURE RATIO	0.2696
COMBUSTOR EFFECTIVENESS	0.6800

INJECTOR DISCHARGE COEFFICIENTS

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	1.0292
NOZZLE COEFFICIENT = CT	0.9882
PROCESS EFFICIENCY	1.2160
KINETIC ENERGY EFFICIENCY	1.0543

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.314	
1C	44.300	
2A	48.789	
2C	46.250	
3A	54.079	
3B	56.264	
4	44.814	

Reading 65

$t = 174.83$ sec.

READING = 0065 BLOCK = 72 TIME = 174.833 MACH 6.0 P1 = 745.999 TT = 3020.7

RAMJET PERFORMANCE

3-3-25

PAGE 1

250

S U M M A R Y R E P O R T

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	TOMIN	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5															
0.000	745.999	3021	677.2(	803)	1.2931	28.852	2594											
0.000	0.395	411	-30.3(	99)	1.3988	28.851	996	5.976	5950	1.830	0.10666	26.866	0.9834	5068	9.662	188.6		
SPIKE TIP NS		2	0 4															
0.600	18.087	3021	677.2(	803)	1.2929	28.851	2594											
0.600	16.305	2950	655.8(	782)	1.2951	26.851	2566	0.403	1034	2.086	0.10666	26.866	0.9834	4970	1.715	185.0		
WIND TUNNEL		3	0 0															
0.000	745.999	3021	677.2(	803)	1.2931	28.852	2594											
0.000	0.381	407	-31.3(	98)	1.3988	28.851	991	6.010	5954	1.830	0.10413	26.229	0.9834	4950	9.635	188.7		
SPIKE TIP NS		4	0 0															
0.600	18.087	3021	677.2(	803)	1.2929	28.851	2594											
0.600	16.400	2954	657.0(	783)	1.2950	28.851	2568	0.391	1005	2.086	0.10413	26.229	0.9834	4950	1.626	188.7		
INLET THROAT		5	0 4															
40.400	289.451	2992	668.6(	794)	1.2940	28.851	2583											
40.400	16.049	1480	237.4(	367)	1.3500	28.851	1856	2.803	4645	1.893	0.94040	26.866	0.1115	4337	67.883	161.4		
INLET UPNRSK		6	0 3															
40.400	289.451	2992	668.6(	794)	1.2940	28.851	2583											
40.400	13.783	1423	222.2(	352)	1.3533	28.851	1821	2.595	4726	1.893	0.85491	26.866	0.1227	4380	62.791	163.0		
INLET DNNRSK		7	0 4															
40.400	123.844	2992	668.6(	794)	1.2939	28.851	2583											
40.400	106.283	2890	637.6(	764)	1.2971	28.851	2542	0.490	1245	1.951	0.85491	26.866	0.1227	4380	16.541	163.0		
COMBUSTOR	0	8	1 21															
40.410	245.750	2951	669.3(	813)	1.2962	27.708	2620											
40.410	12.523	1422	218.6(	366)	1.3544	27.708	1859	2.555	4749	1.966	0.94332	26.953	0.1116	4336	69.617	160.9	0.11	0.07
COMBUSTOR	0	9	2 21															
41.292	184.165	2883	671.7(	824)	1.2999	26.577	2648											
41.292	15.744	1580	271.2(	426)	1.3473	26.577	1995	2.243	4477	2.046	0.94854	27.044	0.1113	4212	65.993	155.7	0.23	0.04
COMBUSTOR	0	10	3 21															
41.302	192.536	2843	671.7(	812)	1.3018	26.534	2633											
41.302	15.781	1537	271.7(	414)	1.3499	26.534	1972	2.269	4474	2.039	0.94884	27.044	0.1113	4210	65.972	155.7	0.23	0.01
COMBUSTOR	0	11	4 21															
41.367	191.024	2836	671.5(	810)	1.3021	26.528	2631											
41.367	16.018	1542	275.0(	416)	1.3497	26.528	1975	2.255	4454	2.039	0.94885	27.044	0.1113	4201	65.681	155.3	0.23	0.00
COMBUSTOR	0	12	5 21															
41.500	186.294	2834	671.1(	809)	1.3022	26.527	2630											
41.500	16.859	1572	283.8(	424)	1.3482	26.527	1993	2.209	4402	2.040	0.94995	27.044	0.1111	4180	64.991	154.6	0.23	0.00
COMBUSTOR	0	13	6 21															
42.460	147.089	2823	667.6(	806)	1.3025	26.527	2625											
42.460	12.524	1540	274.8(	415)	1.3498	26.526	1974	2.246	4434	2.057	0.94103	27.044	0.1122	4087	64.836	151.1	0.23	0.00
COMBUSTOR	0	14	7 21															
44.087	138.413	2851	659.6(	814)	1.3008	26.582	2634											
44.087	19.458	1772	325.7(	482)	1.3383	26.582	2106	1.941	4088	2.064	0.90928	27.044	0.1161	4015	57.761	148.4	0.23	0.05
COMBUSTOR	0	15	8 21															
44.310	142.661	2802	658.4(	799)	1.3030	26.535	2616											
44.310	20.394	1745	332.1(	475)	1.3399	26.535	2093	1.930	4041	2.057	0.90723	27.044	0.1164	4004	56.967	148.1	0.23	0.01
COMBUSTOR	0	16	9 21															
44.800	140.553	2787	655.7(	794)	1.3036	26.528	2609											
44.800	22.450	1784	345.8(	487)	1.3384	26.528	2116	1.861	3938	2.056	0.90342	27.044	0.1169	3982	55.285	147.2	0.23	0.00
COMBUSTOR	0	17	10 21															
44.802	140.659	2786	655.7(	794)	1.3037	26.527	2609											
44.802	22.451	1783	345.8(	486)	1.3384	26.527	2115	1.862	3938	2.056	0.90372	27.044	0.1168	3982	55.302	147.2	0.23	0.00
COMBUSTOR	0	18	11 3															
46.260	135.866	2765	648.1(	787)	1.3043	26.530	2600											
46.240	22.971	1795	348.4(	490)	1.3379	26.530	2121	1.826	3872	2.056	0.85095	27.044	0.1241	3985	51.210	147.4	0.23	0.00

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	M/A	A	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 4														
47.310	122.904	2935	643.0(838)	1.2963	26.727	2660											
47.310	23.345	1975	342.9(541)	1.3288	26.727	2210	1.754	3875	2.078	0.79196	27.044	0.1533	4054	47.687	144.9	0.23	0.17
COMBUSTOR	0	20	13 3														
47.327	121.862	2948	642.9(842)	1.2957	26.742	2665											
47.327	23.495	1993	343.8(546)	1.3280	26.742	2218	1.744	3869	2.080	0.76932	27.044	0.1538	4057	47.455	150.0	0.23	0.19
COMBUSTOR	0	21	14 4														
48.110	106.033	3192	639.2(916)	1.2842	27.021	2746											
48.110	25.839	2306	355.7(638)	1.3138	27.023	2361	1.595	3766	2.107	0.73801	27.044	0.1451	4112	45.194	156.1	0.23	0.42
COMBUSTOR	0	22	15 4														
48.777	118.564	2980	636.1(852)	1.2939	26.799	2675											
48.777	18.278	1909	301.6(521)	1.3306	26.799	2171	1.865	4091	2.084	0.67944	27.044	0.1554	4166	43.200	154.1	0.23	0.23
COMBUSTOR	0	23	16 4														
49.307	131.427	2850	633.7(812)	1.2998	26.666	2628											
49.307	14.304	1662	268.0(449)	1.3424	26.666	2039	2.097	4277	2.065	0.63544	27.044	0.1662	4204	42.239	155.5	0.23	0.12
COMBUSTOR	0	24	17 21														
50.717	148.317	2719	628.0(772)	1.3055	26.548	2578											
50.717	8.831	1348	212.8(359)	1.3605	26.547	1851	2.462	4558	2.044	0.54157	27.044	0.1950	4272	38.361	158.0	0.23	0.02
COMBUSTOR	0	25	18 5														
52.817	106.992	2947	621.3(841)	1.2948	26.812	2660											
52.817	9.262	1631	215.8(439)	1.3425	26.812	2015	2.236	4505	2.087	0.44388	27.044	0.2379	4351	31.075	160.9	0.23	0.25
COMBUSTOR	0	26	19 5														
53.317	134.970	2763	620.0(785)	1.3032	26.620	2593											
53.317	7.005	1323	184.8(352)	1.3611	26.620	1834	2.545	4667	2.055	0.42573	27.044	0.2480	4368	30.875	161.5	0.23	0.08
COMBUSTOR	0	27	20 3														
54.067	126.747	2795	618.1(795)	1.3017	26.660	2605											
54.067	6.692	1347	179.8(359)	1.3593	26.660	1848	2.534	4683	2.062	0.40131	27.044	0.2631	4388	29.208	162.2	0.23	0.12
COMBUSTOR	0	28	21 3														
54.827	120.201	2822	616.3(803)	1.3004	26.694	2614											
54.827	6.375	1364	174.5(363)	1.3580	26.694	1858	2.541	4702	2.068	0.37950	27.044	0.2782	4407	27.733	162.9	0.23	0.14
COMBUSTOR	0	29	22 3														
55.760	115.027	2853	614.4(812)	1.2989	26.734	2625											
55.760	6.039	1386	168.6(369)	1.3565	26.734	1870	2.526	4723	2.075	0.35614	27.044	0.2965	4429	26.142	163.8	0.23	0.18
COMBUSTOR	0	30	23 5														
56.252	75.619	3067	613.5(877)	1.2889	26.969	2700											
56.252	5.862	1663	178.6(446)	1.3394	26.970	2026	2.302	4665	2.121	0.28696	27.044	0.3679	4474	20.803	165.4	0.23	0.38
COMBUSTOR	0	31	24 8														
56.307	125.318	2733	613.4(776)	1.3043	26.610	2581											
56.307	3.859	1135	135.5(300)	1.3723	26.610	1706	2.866	4890	2.057	0.28620	27.044	0.3689	4475	21.750	165.5	0.23	0.07
COMBUSTOR	0	32	25 2														
56.447	124.498	2737	613.1(777)	1.3041	26.615	2582											
56.447	3.834	1137	134.7(301)	1.3722	26.615	1707	2.866	4893	2.058	0.28410	27.044	0.3717	4478	21.603	165.6	0.23	0.08
COMBUSTOR	0	33	26 21														
56.527	44.096	3707	613.0(1072)	1.2547	27.711	2889											
56.527	5.763	2373	174.6(650)	1.3038	27.727	2355	1.989	4684	2.191	0.28733	27.044	0.3675	4480	20.915	165.6	0.23	1.00
COMBUSTOR	0	34	27 21														
56.807	44.125	3705	612.5(1072)	1.2548	27.711	2888											
56.807	5.662	2362	171.1(646)	1.3041	27.727	2350	2.000	4700	2.191	0.28648	27.044	0.3686	4485	20.923	165.8	0.23	1.00
COMBUSTOR	0	35	28 21														
57.033	44.011	3704	612.2(1072)	1.2548	27.711	2888											
57.033	5.539	2351	167.6(643)	1.3045	27.727	2345	2.011	4716	2.191	0.28579	27.044	0.3695	4489	20.947	166.0	0.23	1.00
COMBUSTOR	0	36	29 21														
57.757	43.156	3701	611.1(1071)	1.2549	27.711	2887											
57.757	5.145	2319	157.9(633)	1.3057	27.727	2330	2.044	4762	2.192	0.28135	27.044	0.3753	4497	20.822	166.3	0.23	1.00
COMBUSTOR	0	37	30 21														
58.777	39.356	3697	609.8(1069)	1.2548	27.711	2885											
58.777	4.012	2233	131.6(607)	1.3088	27.727	2289	2.137	4892	2.199	0.27956	27.044	0.3777	4500	21.253	166.4	0.23	1.00

READING = 0065 BLOCK = 72 TIME = 174.833 MACH 6.0 PI = 745.999 TI = 3020.7

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	M	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
60.787	21.613	3689	608.1(1067)	1.2529	27.708	2880											
60.787	1.537	2046	75.5(551)	1.3157	27.727	2197	2.349	5162	2.241	0.28929	27.044	0.3650	4463	23.209	165.8	0.23	1.00
COMBUSTOR	0	39	32 21														
62.207	37.099	3689	607.1(1067)	1.2549	27.711	2882											
62.207	3.581	2199	121.3(597)	1.3100	27.727	2273	2.169	4930	2.202	0.29713	27.044	0.3553	4470	22.767	165.3	0.23	1.00
COMBUSTOR	0	40	33 21														
64.671	45.909	3682	604.2(1064)	1.2559	27.712	2880											
64.671	8.756	2570	235.6(710)	1.2969	27.727	2445	1.757	4295	2.186	0.28165	27.044	0.3749	4451	16.799	164.6	0.23	1.00
COMBUSTOR	0	41	34 200														
65.047	42.714	3680	603.7(1064)	1.2558	27.712	2880											
65.047	10.173	2702	277.2(751)	1.2923	27.727	2502	1.615	4042	2.191	0.26184	27.044	0.4032	4448	16.448	164.5	0.23	1.00
COMBUSTOR REGEN		42	35 3														
65.047	42.714	3864	670.1(1124)	1.2472	27.702	2941											
65.047	9.903	2838	320.6(794)	1.2875	27.726	2560	1.634	4182	2.209	0.26184	27.044	0.4032	4538	17.017	167.8	0.23	1.00
NOZZLE AE		43	36 4														
87.283	42.714	3680	603.7(1057)	1.2558	27.712	2880											
87.283	0.731	1431	-102.6(373)	1.3451	27.727	1858	3.200	5945	2.191	0.05451	27.044	1.9371	5360	5.036	198.2	0.23	1.00
NOZZLE PO		44	37 4														
87.283	42.714	3680	603.7(1057)	1.2558	27.712	2880											
87.283	0.395	1219	-161.1(315)	1.3582	27.727	1723	3.590	6186	2.191	0.03595	27.044	2.9374	5497	3.456	203.3	0.23	1.00
NOZZLE AE REGEN		45	38 4														
87.283	42.714	3864	670.1(1124)	1.2472	27.702	2941											
87.283	0.770	1544	-70.9(405)	1.3386	27.727	1925	3.163	6089	2.209	0.05451	27.044	1.9371	5501	5.158	203.4	0.23	1.00
NOZZLE PO REGEN		46	39 4														
87.283	42.714	3864	670.1(1124)	1.2472	27.702	2941											
87.283	0.395	1300	-138.9(337)	1.3531	27.727	1776	3.582	6362	2.209	0.03466	27.044	3.0461	5656	3.427	209.1	0.23	1.00
FICTIVE COMBUSTR		66	59 0														
65.047	289.451	3687	603.7(1066)	1.2601	27.719	2887											
65.047	0.395	724	-291.7(184)	1.3861	27.727	1341	4.990	6694	2.054	0.06550	27.044	1.6119	5789	6.814	214.1	0.23	1.00
FICTIVE NOZZLE		67	60 0														
87.283	24.115	3655	595.6(1056)	1.2550	27.710	2869											
87.283	0.974	1763	-8.1(468)	1.3274	27.727	2048	2.685	5496	2.230	0.05451	27.044	1.9371	5103	4.656	188.7	0.23	1.00

XABS	P=1B	P=0B	PDA	QOX	Q=1B	Q=0B	CAMALL	P=1B/PS0	P=1B/PT0	P=0B/PS0	P=0B/PT0
6.981E=01	1.055E 00	0.000	=4.409E=01	0.000	0.000	0.000	2.470E=02	2.672E 00	1.414E=03	0.000	0.000
1.836E 01	1.055E 00	0.000	=3.513E =1	0.000	0.000	0.000	1.634E 02	2.672E 00	1.414E=03	0.000	0.000
3.070E 01	2.175E 00	0.000	=1.661E 02	0.000	0.000	0.000	5.053E 02	5.509E 00	2.916E=03	0.000	0.000
3.508E 01	3.887E 00	0.000	=3.625E 02	0.000	0.000	0.000	6.804E 02	9.644E 00	5.210E=03	0.000	0.000
3.518E 01	3.902E 00	5.822E 00	=4.2=6E 02	0.000	0.000	0.000	6.850E 02	9.683E 00	5.231E=03	1.475E 01	7.804E=03
3.519E 01	3.903E 00	5.788E 00	=4.286E 02	0.000	0.000	0.000	6.853E 02	9.685E 00	5.232E=03	1.466E 01	7.759E=03
3.555E 01	3.955E 00	3.772E 00	=4.361E 02	0.000	0.000	0.000	7.213E 02	1.002E 01	5.302E=03	9.555E 00	5.057E=03
3.586E 01	3.910E 00	2.050E 00	=4.502E 02	=1.058E 02	=1.058E 02	0.000	7.525E 02	9.903E 00	5.241E=03	5.192E 00	2.748E=03
3.606E 01	3.880E 00	2.867E 00	=4.608E 02	=1.070E 02	=1.070E 02	0.000	7.733E 02	9.827E 00	5.201E=03	7.262E 00	3.844E=03
3.648E 01	4.218E 00	4.557E 00	=4.798E 02	=1.097E 02	=1.097E 02	0.000	8.169E 02	1.066E 01	5.654E=03	1.154E 01	6.109E=03
3.701E 01	4.185E 00	6.690E 00	=5.036E 02	=1.283E 02	=1.131E 02	=1.520E 01	8.730E 02	1.060E 01	5.610E=03	1.694E 01	8.968E=03
3.732E 01	4.062E 00	7.925E 00	=5.144E 02	=1.354E 02	=1.152E 02	=2.014E 01	9.059E 02	1.029E 01	5.445E=03	2.007E 01	1.062E=02
3.803E 01	3.775E 00	1.345E 01	=5.273E 02	=1.518E 02	=1.204E 02	=3.137E 01	9.838E 02	9.561E 00	5.060E=03	3.406E 01	1.803E=02
3.834E 01	5.239E 00	1.582E 01	=5.249E 02	=1.592E 02	=1.230E 02	=3.617E 01	1.018E 03	1.327E 01	7.023E=03	4.008E 01	2.121E=02
3.875E 01	7.210E 00	1.541E 01	=5.243E 02	=1.704E 02	=1.278E 02	=4.259E 01	1.065E 03	1.826E 01	9.665E=03	3.902E 01	2.065E=02
3.881E 01	7.481E 00	1.535E 01	=5.244E 02	=1.720E 02	=1.286E 02	=4.347E 01	1.071E 03	1.895E 01	1.003E=02	3.888E 01	2.058E=02
3.901E 01	8.450E 00	1.562E 01	=5.237E 02	=1.781E 02	=1.315E 02	=4.661E 01	1.094E 03	2.140E 01	1.133E=02	3.956E 01	2.094E=02
3.932E 01	1.356E 01	1.602E 01	=5.283E 02	=1.881E 02	=1.368E 02	=5.134E 01	1.130E 03	3.435E 01	1.818E=02	4.059E 01	2.148E=02
3.950E 01	1.661E 01	1.181E 01	=5.368E 02	=1.945E 02	=1.403E 02	=5.415E 01	1.151E 03	4.208E 01	2.227E=02	2.991E 01	1.583E=02
3.981E 01	1.714E 01	4.750E 00	=5.607E 02	=2.059E 02	=1.472E 02	=5.874E 01	1.187E 03	4.342E 01	2.298E=02	1.203E 01	6.367E=03
4.000E 01	1.748E 01	4.573E 00	=5.789E 02	=2.136E 02	=1.520E 02	=6.160E 01	1.209E 03	4.427E 01	2.343E=02	1.158E 01	6.130E=03
4.040E 01	2.077E 01	4.206E 00	=6.188E 02	=2.308E 02	=1.629E 02	=6.781E 01	1.256E 03	5.260E 01	2.784E=02	1.065E 01	5.638E=03
4.041E 01	2.085E 01	4.197E 00	=6.197E 02	=2.312E 02	=1.632E 02	=6.797E 01	1.257E 03	5.281E 01	2.795E=02	1.063E 01	5.626E=03
4.129E 01	2.810E 01	3.388E 00	=7.257E 02	=2.845E 02	=1.902E 02	=9.433E 01	1.362E 03	7.117E 01	3.767E=02	8.580E 00	4.541E=03
4.130E 01	2.818E 01	3.378E 00	=7.270E 02	=2.853E 02	=1.905E 02	=9.477E 01	1.363E 03	7.138E 01	3.778E=02	8.557E 00	4.529E=03
4.137E 01	2.872E 01	3.319E 00	=7.356E 02	=2.903E 02	=1.927E 02	=9.764E 01	1.371E 03	7.273E 01	3.850E=02	8.406E 00	4.449E=03
4.150E 01	2.981E 01	3.905E 00	=7.533E 02	=3.011E 02	=1.972E 02	=1.039E 02	1.386E 03	7.551E 01	3.996E=02	9.891E 00	5.235E=03
4.246E 01	1.691E 01	8.135E 00	=8.288E 02	=3.962E 02	=2.352E 02	=1.611E 02	1.501E 03	4.284E 01	2.267E=02	2.060E 01	1.090E=02
4.409E 01	2.361E 01	1.530E 01	=8.705E 02	=6.111E 02	=3.281E 02	=2.830E 02	1.698E 03	5.981E 01	3.165E=02	3.876E 01	2.051E=02
4.431E 01	2.453E 01	1.626E 01	=8.769E 02	=6.443E 02	=3.440E 02	=3.003E 02	1.725E 03	6.213E 01	3.288E=02	4.117E 01	2.179E=02
4.480E 01	2.655E 01	1.835E 01	=8.906E 02	=7.176E 02	=3.814E 02	=3.362E 02	1.785E 03	6.724E 01	3.559E=02	4.648E 01	2.460E=02
4.480E 01	2.654E 01	1.836E 01	=8.908E 02	=7.179E 02	=3.816E 02	=3.363E 02	1.785E 03	6.723E 01	3.558E=02	4.650E 01	2.461E=02
4.626E 01	2.135E 01	2.459E 01	=8.631E 02	=9.250E 02	=4.928E 02	=4.322E 02	1.964E 03	5.408E 01	2.862E=02	6.228E 01	3.296E=02
4.731E 01	1.761E 01	2.908E 01	=7.778E 02	=1.063E 03	=5.661E 02	=4.967E 02	2.095E 03	4.461E 01	2.361E=02	7.365E 01	3.898E=02
4.733E 01	1.784E 01	2.915E 01	=7.748E 02	=1.065E 03	=5.673E 02	=4.977E 02	2.097E 03	4.518E 01	2.391E=02	7.383E 01	3.908E=02
4.811E 01	2.840E 01	2.328E 01	=7.075E 02	=1.165E 03	=6.184E 02	=5.465E 02	2.194E 03	7.193E 01	3.807E=02	5.896E 01	3.120E=02
4.878E 01	1.828E 01	1.828E 01	=6.438E 02	=1.248E 03	=6.595E 02	=5.888E 02	2.278E 03	4.629E 01	2.450E=02	4.629E 01	2.450E=02
4.931E 01	1.430E 01	1.430E 01	=5.988E 02	=1.314E 03	=6.907E 02	=6.230E 02	2.344E 03	3.623E 01	1.917E=02	3.623E 01	1.917E=02
5.072E 01	8.831E 00	8.831E 00	=5.133E 02	=1.468E 03	=7.669E 02	=7.009E 02	2.522E 03	2.237E 01	1.184E=02	2.237E 01	1.184E=02
5.282E 01	9.262E 00	9.262E 00	=4.137E 02	=1.647E 03	=8.621E 02	=7.849E 02	2.788E 03	2.346E 01	1.242E=02	2.346E 01	1.242E=02
5.332E 01	7.005E 00	7.005E 00	=3.925E 02	=1.683E 03	=8.816E 02	=8.017E 02	2.852E 03	1.774E 01	9.390E=03	1.774E 01	9.390E=03
5.407E 01	6.692E 00	6.692E 00	=3.660E 02	=1.734E 03	=9.086E 02	=8.256E 02	2.948E 03	1.695E 01	8.971E=03	1.695E 01	8.971E=03
5.483E 01	6.375E 00	6.375E 00	=3.407E 02	=1.782E 03	=9.332E 02	=8.485E 02	3.045E 03	1.615E 01	8.546E=03	1.615E 01	8.546E=03
5.576E 01	6.039E 00	6.039E 00	=3.117E 02	=1.834E 03	=9.597E 02	=8.747E 02	3.165E 03	1.530E 01	8.095E=03	1.530E 01	8.095E=03
5.625E 01	5.862E 00	5.862E 00	=2.645E 02	=1.859E 03	=9.714E 02	=8.878E 02	3.209E 03	1.485E 01	7.858E=03	1.485E 01	7.858E=03
5.631E 01	1.875E 00	5.842E 00	=2.629E 02	=1.862E 03	=9.726E 02	=8.892E 02	3.216E 03	4.749E 00	2.513E=03	1.480E 01	7.832E=03
5.645E 01	1.875E 00	5.792E 00	=2.591E 02	=1.868E 03	=9.756E 02	=8.928E 02	3.234E 03	4.749E 00	2.513E=03	1.467E 01	7.764E=03
5.653E 01	5.763E 00	5.763E 00	=2.568E 02	=1.872E 03	=9.772E 02	=8.949E 02	3.245E 03	1.460E 01	7.726E=03	1.460E 01	7.726E=03
5.681E 01	5.662E 00	5.662E 00	=2.493E 02	=1.885E 03	=9.828E 02	=9.020E 02	3.280E 03	1.434E 01	7.590E=03	1.434E 01	7.590E=03
5.703E 01	5.539E 00	5.539E 00	=2.439E 02	=1.895E 03	=9.870E 02	=9.077E 02	3.309E 03	1.403E 01	7.425E=03	1.403E 01	7.425E=03
5.776E 01	5.145E 00	5.145E 00	=2.294E 02	=1.925E 03	=9.988E 02	=9.258E 02	3.402E 03	1.303E 01	6.897E=03	1.303E 01	6.897E=03
5.878E 01	4.012E 00	4.012E 00	=2.188E 02	=1.960E 03	=1.011E 03	=9.484E 02	3.532E 03	1.016E 01	5.379E=03	1.016E 01	5.379E=03
6.079E 01	1.537E 00	1.537E 00	=2.181E 02	=2.005E 03	=1.026E 03	=9.796E 02	3.790E 03	3.894E 00	2.061E=03	3.894E 00	2.061E=03
6.221E 01	3.581E 00	3.581E 00	=2.181E 02	=2.052E 03	=1.034E 03	=9.981E 02	3.972E 03	9.070E 00	4.801E=03	9.070E 00	4.801E=03
6.467E 01	8.756E 00	8.756E 00	=2.181E 02	=2.109E 03	=1.059E 03	=1.050E 03	4.289E 03	2.218E 01	1.174E=02	2.218E 01	1.174E=02
6.505E 01	1.080E 01	9.546E 00	=2.181E 02	=2.165E 03	=1.064E 03	=1.060E 03	4.537E 03	2.735E 01	1.448E=02	2.418E 01	1.280E=02

READING # 0065 BLOCK # 72 TIME # 174,833 MACH 6.0 PT # 745.999 TT # 3020.7

XABB	P=IB	P=OB	PDA	QOX	Q=IB	Q=OB	CAWALL	P=IB/PSO	P=IB/PTO	P=OB/PSO	P=OB/PTO
6.509E 01	1.080E 01	9.630E 00	-2.181E 02	-2.126E 03	-1.065E 03	-1.061E 03	4.342E 03	2.735E 01	1.448E-02	2.439E 01	1.291E-02
6.529E 01	1.022E 01	1.005E 01	-2.181E 02	-2.155E 03	-1.068E 03	-1.067E 03	4.368E 03	2.587E 01	1.369E-02	2.545E 01	1.347E-02
6.695E 01	5.360E 00	3.820E 00	-1.373E 02	-2.186E 03	-1.085E 03	-1.101E 03	4.583E 03	1.358E 01	7.185E-03	9.675E 00	5.121E-03
6.762E 01	3.543E 00	3.577E 00	-5.474E 01	-2.199E 03	-1.088E 03	-1.110E 03	4.665E 03	8.974E 00	4.749E-03	9.061E 00	4.796E-03
6.839E 01	1.455E 00	2.809E 00	2.312E 01	-2.212E 03	-1.092E 03	-1.120E 03	4.760E 03	3.685E 00	1.950E-03	7.114E 00	3.765E-03
6.911E 01	1.815E 00	2.090E 00	7.506E 01	-2.223E 03	-1.094E 03	-1.130E 03	4.848E 03	4.597E 00	2.433E-03	5.293E 00	2.802E-03
6.972E 01	2.120E 00	2.207E 00	1.199E 02	-2.235E 03	-1.095E 03	-1.140E 03	4.922E 03	5.369E 00	2.842E-03	5.591E 00	2.959E-03
7.067E 01	1.445E 00	2.390E 00	1.844E 02	-2.267E 03	-1.097E 03	-1.159E 03	5.036E 03	3.661E 00	1.937E-03	6.053E 00	3.204E-03
7.110E 01	1.140E 00	2.134E 00	2.088E 02	-2.267E 03	-1.098E 03	-1.169E 03	5.088E 03	2.887E 00	1.528E-03	5.406E 00	2.861E-03
7.263E 01	9.897E-01	1.226E 00	2.727E 02	-2.292E 03	-1.100E 03	-1.192E 03	5.273E 03	2.507E 00	1.327E-03	3.103E 00	1.642E-03
7.278E 01	9.750E-01	1.222E 00	2.775E 02	-2.294E 03	-1.100E 03	-1.193E 03	5.290E 03	2.469E 00	1.307E-03	3.094E 00	1.638E-03
7.353E 01	9.371E-01	1.205E 00	3.154E 02	-2.304E 03	-1.102E 03	-1.202E 03	5.374E 03	2.374E 00	1.256E-03	3.052E 00	1.615E-03
7.353E 01	9.369E-01	1.205E 00	3.177E 02	-2.304E 03	-1.102E 03	-1.202E 03	5.375E 03	2.373E 00	1.256E-03	3.052E 00	1.615E-03
7.486E 01	8.700E-01	0.000	3.368E 02	-2.324E 03	-1.103E 03	-1.221E 03	5.427E 03	2.203E 00	1.166E-03	0.000	0.000
7.771E 01	8.600E-01	0.000	3.714E 02	-2.328E 03	-1.107E 03	-1.221E 03	5.525E 03	2.178E 00	1.153E-03	0.000	0.000
8.161E 01	1.275E 00	0.000	4.170E 02	-2.331E 03	-1.110E 03	-1.221E 03	5.630E 03	3.229E 00	1.709E-03	0.000	0.000
8.442E 01	1.055E 00	0.000	4.429E 02	-2.335E 03	-1.110E 03	-1.221E 03	5.684E 03	2.672E 00	1.414E-03	0.000	0.000
8.728E 01	1.315E 00	0.000	4.715E 02	-2.342E 03	-1.121E 03	-1.221E 03	5.707E 03	3.331E 00	1.763E-03	0.000	0.000
8.728E 01	1.316E 00	0.000	4.715E 02	-2.342E 03	-1.121E 03	-1.221E 03	5.707E 03	3.332E 00	1.763E-03	0.000	0.000

READING # 0065 BLOCK # 72 TIME = 174.833 MACH 6.0 PT = 745.999 TT = 3020.7

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.152E 02	1.152E 02	2.231E-03	4.407E-02
4.041E 01	1.915E-01	1.153E 02	2.486E-03	3.566E-02
4.129E 01	1.815E 01	1.335E 02	2.647E-03	4.150E-02
4.130E 01	1.963E-01	1.337E 02	2.436E-03	4.405E-02
4.137E 01	1.235E 00	1.349E 02	2.410E-03	4.482E-02
4.150E 01	2.509E 00	1.374E 02	2.424E-03	4.669E-02
4.246E 01	1.833E 01	1.558E 02	2.493E-03	3.639E-02
4.409E 01	3.026E 01	1.860E 02	2.522E-03	4.814E-02
4.431E 01	3.957E 00	1.900E 02	2.569E-03	4.892E-02
4.480E 01	8.597E 00	1.986E 02	2.553E-03	5.219E-02
4.480E 01	3.522E-02	1.986E 02	2.593E-03	5.219E-02
4.626E 01	2.434E 01	2.230E 02	2.550E-03	5.237E-02
4.731E 01	1.629E 01	2.393E 02	2.510E-03	5.274E-02
4.733E 01	2.608E-01	2.395E 02	2.634E-03	5.083E-02
4.811E 01	1.164E 01	2.512E 02	2.632E-03	5.307E-02
4.870E 01	9.626E 00	2.608E 02	2.709E-03	4.050E-02
4.931E 01	7.436E 00	2.682E 02	2.520E-03	3.564E-02
5.072E 01	1.741E 01	2.856E 02	2.338E-03	2.564E-02
5.282E 01	2.089E 01	3.065E 02	2.181E-03	2.646E-02
5.332E 01	4.484E 00	3.110E 02	2.362E-03	2.039E-02
5.407E 01	6.520E 00	3.175E 02	2.168E-03	2.042E-02
5.483E 01	6.034E 00	3.236E 02	2.185E-03	1.938E-02
5.576E 01	7.073E 00	3.306E 02	2.194E-03	1.632E-02
5.625E 01	2.297E 00	3.329E 02	2.211E-03	1.686E-02
5.631E 01	3.433E-01	3.333E 02	2.369E-03	1.186E-02
5.645E 01	8.444E-01	3.341E 02	2.015E-03	1.284E-02
5.653E 01	5.273E-01	3.346E 02	2.831E-03	1.398E-02
5.681E 01	2.110E 00	3.368E 02	2.824E-03	1.380E-02
5.703E 01	1.703E 00	3.385E 02	2.819E-03	1.358E-02
5.776E 01	5.445E 00	3.439E 02	2.811E-03	1.284E-02
5.878E 01	7.747E 00	3.516E 02	2.824E-03	1.068E-02
6.079E 01	1.687E 01	3.685E 02	3.062E-03	5.063E-03
6.221E 01	1.236E 01	3.809E 02	2.842E-03	9.793E-03
6.467E 01	1.865E 01	3.995E 02	2.834E-03	1.819E-02
6.505E 01	2.436E 00	4.020E 02	2.897E-03	1.949E-02
6.509E 01	2.526E-01	4.022E 02	2.958E-03	1.997E-02
6.529E 01	1.302E 00	4.035E 02	2.957E-03	1.987E-02
6.695E 01	9.480E 00	4.130E 02	2.811E-03	1.194E-02
6.762E 01	2.874E 00	4.189E 02	2.766E-03	9.990E-03
6.839E 01	2.726E 00	4.186E 02	2.677E-03	6.872E-03
6.911E 01	2.115E 00	4.207E 02	2.658E-03	6.427E-03
6.972E 01	1.786E 00	4.225E 02	2.671E-03	6.925E-03
7.067E 01	2.740E 00	4.252E 02	2.643E-03	6.314E-03
7.110E 01	1.145E 00	4.264E 02	2.616E-03	5.604E-03
7.263E 01	3.432E 00	4.298E 02	2.545E-03	4.147E-03
7.278E 01	2.812E-01	4.301E 02	2.543E-03	4.120E-03
7.353E 01	1.363E 00	4.315E 02	2.535E-03	4.034E-03
7.353E 01	2.589E-03	4.315E 02	2.535E-03	4.033E-03
7.486E 01	7.749E-01	4.322E 02	2.493E-03	3.422E-03
7.771E 01	1.357E 00	4.336E 02	2.477E-03	3.372E-03
8.161E 01	1.643E 00	4.352E 02	2.528E-03	4.546E-03
8.442E 01	9.035E-01	4.361E 02	2.484E-03	3.907E-03
8.728E 01	3.778E-01	4.365E 02	2.511E-03	4.611E-03
8.728E 01	0.000	4.365E 02	2.511E-03	4.612E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	32.	(LBF)
MEASURED THRUST	=234.	(LBF)
CALCULATED SPECIFIC IMPULSE	161.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=1316.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.0127	
MEASURED THRUST COEFFICIENT	=.0927	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	5237.	(LBF)
NET THRUST	166.	(LBF)
SPECIFIC IMPULSE	933.	(LBF=SEC/LBM)
THRUST COEFFICIENT	0.0658	

MOMENTUM AND FORCES

INLET FRICTION DRAG	115.2	(LBF)
INLET MOMENTUM CHANGE	=734.0	(LBF)
COMBUSTOR FRICTION DRAG	286.8	(LBF)
COMBUSTOR STRUT DRAG	2.64	(LBF)
COMBUSTOR MOMENTUM CHANGE	111.	(LBF)
NOZZLE FRICTION DRAG	34.56	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUN CHANGE	655.	(LBF)
NOZZLE PRESSURE INTEGRAL	690.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	=1078.	(LBF)
TOTAL STRUT DRAG	2.64	(LBF)
CAVITY FORCE	=1109.	(LBF)
CALCULATED LOAD CELL FORCE	=2154.	(LBF)
MEASURED LOAD CELL FORCE	=2421.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0,	0.0,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3069	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.191	(IN)
NOZZLE SHROUD TRAILING EDGE	73.531	(IN)
NOZZLE PLUG TRAILING EDGE	87.284	(IN)
STRUT LEADING EDGE	56.447	(IN)
STRUT TRAILING EDGE	65.047	(IN)
COMBUSTOR EXIT	65.047	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9854	
ADDITIVE DRAG COEFFICIENT	0.0007	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1637	
DELTA PT2	0.1195	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.3880	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1660	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8907	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9035	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9465	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8967	
ENTHALPY AT P0 = SUPERSONIC	=1.05	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	34.16	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0066	
EQUIVALENCE RATIO	0.226	
COMBUSTOR EFFICIENCY	1.000	
TOTAL PRESSURE RATIO	0.1476	
COMBUSTOR EFFECTIVENESS	0.7985	
INJECTOR DISCHARGE COEFFICIENTS	0.8414,	0.7284,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9521
NOZZLE COEFFICIENT = CT	0.8928
PROCESS EFFICIENCY	0.8167
KINETIC ENERGY EFFICIENCY	0.8934

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.292	B
1C	44.300	
2A	48.767	
2C	46.250	
3A	54.097	
3B	56.242	
4	44.792	

Reading 65

t = 180.23 sec.

READING # 0065 BLOCK # 78 TIME = 180.233 MACH 6.0 PT = 745.499 TT = 3062.1 PAGE 1

RAMJET PERFORMANCE

3-3-75

S U M M A R Y R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	745.499	3062	689.8(815)	1.2918	28.852	2611											
0.000	0.402	421	-28.1(101)	1.3989	28.851	1007	5.952	5993	1.834	0.10694	26.840	0.9799	5101	9.960	190.0		
SPIKE TIP NS		2	0 3														
0.600	18.062	3062	689.8(815)	1.2916	28.851	2611											
0.600	16.236	2989	667.5(793)	1.2939	28.851	2582	0.408	1054	2.091	0.10694	26.840	0.9799	4955	1.752	184.6		
WIND TUNNEL		3	0 0														
0.000	745.499	3062	689.8(815)	1.2918	28.852	2611											
0.000	0.382	414	-29.5(100)	1.3989	28.851	999	6.003	5999	1.834	0.10317	25.895	0.9799	4925	9.619	190.2		
SPIKE TIP NS		4	0 0														
0.600	18.062	3062	689.8(815)	1.2916	28.851	2611											
0.600	16.380	2995	669.4(795)	1.2937	28.851	2584	0.391	1010	2.091	0.10317	25.895	0.9799	4924	1.620	190.2		
INLET THROAT		5	0 4														
40.400	304.417	3009	673.7(799)	1.2934	28.851	2590											
40.400	15.632	1460	232.2(361)	1.3511	28.851	1844	2.549	4701	1.891	0.93949	26.840	0.1115	4368	68.630	162.7		
INLET UPNRSK		6	0 3														
40.400	304.417	3009	673.7(799)	1.2934	28.851	2590											
40.400	13.436	1404	217.2(347)	1.3544	28.851	1810	2.640	4779	1.891	0.85409	26.840	0.1227	4409	63.437	164.3		
INLET DNNRSR		7	0 4														
40.400	124.872	3009	673.7(799)	1.2934	28.851	2590											
40.400	107.442	2908	643.1(769)	1.2966	28.851	2549	0.486	1258	1.952	0.85409	26.840	0.1227	4409	16.434	164.3		
COMBUSTOR	0	8	1 21														
40.410	255.929	2967	675.1(820)	1.2958	27.650	2629											
40.410	12.525	1416	216.7(365)	1.3548	27.690	1897	2.579	4789	1.969	0.94258	26.932	0.1116	4367	70.155	162.1	0.12	0.07
COMBUSTOR	0	9	2 21														
41.292	189.294	2896	678.1(831)	1.2996	26.462	2659											
41.292	15.682	1975	270.1(426)	1.3477	26.462	1997	2.262	4518	2.052	0.94798	27.028	0.1113	4243	66.563	157.0	0.24	0.04
COMBUSTOR	0	10	3 21														
41.302	198.507	2854	678.0(819)	1.3016	26.418	2644											
41.302	15.717	1530	270.6(414)	1.3505	26.417	1972	2.290	4515	2.045	0.94827	27.028	0.1113	4241	66.541	156.9	0.24	0.01
COMBUSTOR	0	11	4 21														
41.367	197.912	2847	677.8(817)	1.3019	26.411	2642											
41.367	15.950	1534	273.9(415)	1.3503	26.411	1975	2.276	4496	2.045	0.94828	27.028	0.1113	4231	66.253	156.6	0.24	0.00
COMBUSTOR	0	12	5 21														
41.500	192.182	2845	677.4(816)	1.3020	26.410	2641											
41.500	16.847	1565	283.1(424)	1.3487	26.410	1993	2.228	4442	2.046	0.94938	27.028	0.1111	4211	65.536	155.8	0.24	0.00
COMBUSTOR	0	13	6 21														
42.460	155.650	2832	673.2(812)	1.3024	26.410	2635											
42.460	13.361	1548	278.3(419)	1.3496	26.409	1983	2.241	4445	2.061	0.94047	27.028	0.1122	4118	64.967	152.4	0.24	0.00
COMBUSTOR	0	14	7 21														
44.087	149.367	2813	663.9(806)	1.3028	26.420	2626											
44.087	23.185	1789	345.9(490)	1.3382	26.420	2123	1.879	3989	2.061	0.90874	27.028	0.1161	4040	56.333	149.5	0.24	0.01
COMBUSTOR	0	15	8 21														
44.310	148.041	2800	662.4(802)	1.3034	26.411	2621											
44.310	24.279	1805	353.3(495)	1.3377	26.411	2132	1.845	3933	2.061	0.90669	27.028	0.1164	4028	55.419	149.0	0.24	0.00
COMBUSTOR	0	16	9 3														
44.800	136.384	2855	659.1(818)	1.3007	26.480	2640											
44.800	26.680	1928	369.3(531)	1.3322	26.480	2196	1.734	3808	2.072	0.90288	27.028	0.1169	3997	53.426	147.9	0.24	0.06
COMBUSTOR	0	17	10 2														
44.802	136.427	2854	659.1(818)	1.3007	26.479	2640											
44.802	26.681	1927	369.3(531)	1.3322	26.479	2196	1.734	3808	2.072	0.90318	27.028	0.1168	3997	53.443	147.9	0.24	0.06
COMBUSTOR	0	18	11 13														
46.250	119.473	2673	651.4(807)	1.3094	24.834	2647											
46.250	27.110	1860	384.9(542)	1.3378	24.833	2232	1.697	3652	2.164	0.85562	27.172	0.1240	3945	48.599	145.2	0.42	0.01

READING = 0065 BLOCK = 78 TIME = 180.233 MACH 6.0 PT = 745.499 TT = 3062.1

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	2														
46.260	119.349	2674	651.4(	808)	1.3094	24.835	2647											
46.260	27.113	1861	384.9(	543)	1.3377	24.835	2232	1.636	3651	2.164	0.85499	27.172	0.1241	3946	46.517	145.2	0.42	0.01
COMBUSTOR	0	20	13	4														
47.310	108.008	2796	643.7(	846)	1.3036	24.976	2693											
47.310	27.424	2010	383.6(	588)	1.3304	24.976	2307	1.564	3608	2.183	0.79573	27.172	0.1333	3983	44.612	146.6	0.42	0.09
COMBUSTOR	0	21	14	2														
47.327	107.526	2803	643.6(	849)	1.3032	24.984	2696											
47.327	27.465	2019	383.7(	591)	1.3300	24.984	2311	1.560	3606	2.185	0.79307	27.172	0.1336	3986	44.439	146.7	0.42	0.09
COMBUSTOR	0	22	15	4														
48.110	99.963	2915	638.1(	884)	1.2979	25.111	2737											
48.110	27.069	2137	378.6(	627)	1.3241	25.111	2367	1.522	3603	2.200	0.74152	27.172	0.1431	4035	41.522	148.5	0.42	0.16
COMBUSTOR	0	23	16	5														
48.767	96.549	2758	637.7(	873)	1.3058	23.804	2742											
48.767	25.483	1958	361.6(	599)	1.3335	23.804	2335	1.592	3717	2.273	0.68671	27.298	0.1552	4067	39.662	149.7	0.58	0.09
COMBUSTOR	0	24	17	2														
48.777	96.460	2759	637.6(	874)	1.3057	23.806	2743											
48.777	25.455	1959	361.4(	599)	1.3334	23.806	2336	1.592	3718	2.273	0.68582	27.298	0.1554	4068	39.624	149.7	0.58	0.09
COMBUSTOR	0	25	18	4														
49.307	92.220	2826	634.4(	896)	1.3025	25.877	2769											
49.307	21.958	2001	348.4(	613)	1.3310	23.878	2355	1.606	3782	2.283	0.64141	27.298	0.1662	4144	37.704	151.8	0.58	0.12
COMBUSTOR	0	26	19	4														
50.717	81.748	3018	626.6(	960)	1.2934	24.082	2839											
50.717	19.237	2145	320.7(	658)	1.3231	24.082	2421	1.616	3912	2.309	0.54665	27.298	0.1950	4280	33.232	156.6	0.58	0.21
COMBUSTOR	0	27	20	3														
52.817	79.032	3042	617.0(	968)	1.2919	24.132	2846											
52.817	13.462	2000	253.7(	609)	1.3279	24.132	2339	1.823	4264	2.313	0.44805	27.298	0.2379	4438	29.686	162.6	0.58	0.23
COMBUSTOR	0	28	21	2														
53.317	79.177	3032	615.1(	964)	1.2924	24.127	2842											
53.317	12.382	1951	239.1(	592)	1.3299	24.127	2312	1.876	4337	2.312	0.42973	27.298	0.2480	4466	28.966	163.6	0.58	0.23
COMBUSTOR	0	29	22	3														
54.067	77.290	3053	612.2(	972)	1.2913	24.155	2849											
54.067	11.410	1939	224.6(	588)	1.3300	24.156	2304	1.911	4404	2.315	0.40508	27.298	0.2631	4505	27.724	165.0	0.58	0.24
COMBUSTOR	0	30	23	3														
54.827	76.372	3058	609.6(	973)	1.2909	24.167	2850											
54.827	10.425	1905	209.1(	577)	1.3312	24.168	2284	1.960	4476	2.316	0.38307	27.298	0.2782	4541	26.649	166.3	0.58	0.25
COMBUSTOR	0	31	24	3														
55.760	73.839	3088	606.6(	983)	1.2894	24.204	2860											
55.760	9.647	1906	195.7(	576)	1.3308	24.205	2283	1.987	4535	2.321	0.35949	27.298	0.2965	4580	25.333	167.8	0.58	0.26
COMBUSTOR	0	32	25	5														
56.252	54.649	3419	605.1(1095)		1.2728	24.544	2969											
56.252	9.238	2284	198.8(	698)	1.3124	24.548	2464	1.830	4509	2.369	0.28966	27.298	0.3079	4696	20.298	172.0	0.58	0.40
COMBUSTOR	0	33	26	5														
56.307	64.234	3192	605.0(1018)		1.2843	24.312	2895											
56.307	7.540	1929	163.9(	583)	1.3286	24.314	2289	2.052	4698	2.340	0.28889	27.298	0.3689	4699	21.093	172.1	0.58	0.31
COMBUSTOR	0	34	27	3														
56.447	63.933	3197	604.6(1020)		1.2841	24.318	2897											
56.447	7.481	1931	162.4(	583)	1.3284	24.320	2290	2.054	4704	2.341	0.28677	27.298	0.3717	4703	20.965	172.3	0.58	0.31
COMBUSTOR	0	35	28	7														
56.527	56.043	3400	604.4(1089)		1.2738	24.526	2963											
56.527	9.008	2242	191.1(	684)	1.3141	24.530	2444	1.861	4548	2.365	0.29003	27.298	0.3675	4707	20.499	172.4	0.58	0.39
COMBUSTOR	0	36	29	3														
56.807	57.116	3384	603.7(1083)		1.2746	24.511	2958											
56.807	8.775	2206	184.1(	672)	1.3157	24.515	2426	1.869	4582	2.363	0.28917	27.298	0.3686	4716	20.592	172.8	0.58	0.39
COMBUSTOR	0	37	30	3														
57.033	57.047	3395	603.1(1087)		1.2740	24.524	2961											
57.033	8.775	2215	182.4(	675)	1.3152	24.529	2430	1.868	4588	2.363	0.28848	27.298	0.3695	4723	20.569	173.0	0.58	0.39

READING = 0065 BLOCK = 78 TIME = 180.233 MACH 6.0 PI = 745.499 TT = 3062.1

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 4														
57.757	55.942	3437	601.3(1101)	1.2718	24.573	2974											
57.757	6.775	2258	179.5(689)	1.3130	24.578	2449	1.876	4595	2.367	0.28400	27.298	0.3753	4742	20.280	173.7	0.58	0.41
COMBUSTOR	0	39	32 7														
58.777	102.077	2850	599.0(903)	1.3002	23.994	2771											
58.777	4.800	1334	89.0(395)	1.3607	23.994	1940	2.605	5052	2.274	0.28219	27.298	0.3777	4751	22.155	174.0	0.58	0.17
COMBUSTOR	0	40	33 6														
60.787	46.328	3890	594.5(1257)	1.2449	25.080	3098											
60.787	12.825	2978	246.4(929)	1.2813	25.105	2749	1.518	4173	2.406	0.29201	27.298	0.3650	4740	18.938	175.6	0.58	0.62
COMBUSTOR	0	41	34 5														
62.207	42.485	4302	590.7(1400)	1.2152	25.564	3189											
62.207	18.881	3707	338.7(1181)	1.2438	25.630	2991	1.187	3551	2.428	0.29993	27.298	0.3553	4731	16.591	173.3	0.58	0.82
COMBUSTOR	0	42	35 4														
64.671	40.930	4177	583.4(1356)	1.2240	25.439	3161											
64.671	16.156	3496	305.4(1107)	1.2555	25.491	2926	1.275	3729	2.425	0.28430	27.298	0.3749	4716	16.477	172.1	0.58	0.77
COMBUSTOR	0	43	36 3														
65.047	37.966	4180	582.2(1357)	1.2230	25.446	3160											
65.047	15.126	3507	306.5(1111)	1.2547	25.500	2929	1.268	3714	2.431	0.26430	27.298	0.4032	4713	15.254	172.1	0.58	0.77
COMBUSTOR REGEN		44	37 3														
65.047	37.966	4369	670.2(1427)	1.2114	25.407	3218											
65.047	16.732	3767	409.9(1205)	1.2413	25.484	3020	1.195	3608	2.452	0.26430	27.298	0.4032	4790	14.821	175.5	0.58	0.77
NOZZLE AE		45	38 5														
87.283	37.966	4180	582.2(1339)	1.2230	25.446	3160											
87.283	0.978	1903	-258.0(958)	1.3165	25.514	2209	2.935	6484	2.431	0.05502	27.298	1.9371	5986	5.544	219.3	0.58	0.77
NOZZLE PO		46	39 5														
87.283	37.966	4180	582.2(1339)	1.2230	25.446	3160											
87.283	0.402	1529	-376.4(440)	1.3349	25.514	1995	3.472	6926	2.431	0.03005	27.298	3.5467	6241	3.234	228.6	0.58	0.77
NOZZLE AE REGEN		47	40 5														
87.283	37.966	4369	670.2(1427)	1.2114	25.407	3218											
87.283	1.031	2052	-209.2(607)	1.3102	25.514	2289	2.898	6633	2.452	0.05502	27.298	1.9371	6140	5.672	224.9	0.58	0.77
NOZZLE PO REGEN		48	41 5														
87.283	37.966	4369	670.2(1427)	1.2114	25.407	3218											
87.283	0.402	1633	-343.9(472)	1.3292	25.514	2057	3.463	7123	2.452	0.02894	27.298	3.6831	6423	3.203	235.3	0.58	0.77
FICTIVE COMBUSTR		68	61 0														
65.047	304.417	4682	582.2(1532)	1.2100	26.040	3289											
65.047	0.402	1073	-715.0(298)	1.3574	26.150	1664	4.842	8057	2.281	0.05107	27.298	2.0868	7051	6.395	258.3	0.58	1.00
FICTIVE NOZZLE		69	62 0														
87.283	26.477	4130	563.1(1338)	1.2227	25.446	3141											
87.283	1.161	2129	-183.6(633)	1.3071	25.514	2329	2.625	6112	2.455	0.05502	27.298	1.9371	5762	5.226	211.1	0.58	0.77

READING = 0065 BLOCK = 78 TIME = 180.233 MACH 6.0 PI = 745.499 TI = 3062.1 PAGE 4

XABS	P-IB	P-OB	PDA	UOX	U-IB	U-OB	QAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PIO
6.981E-01	1.055E 00	0.000	-4.406E-01	0.000	0.000	0.000	2.470E-02	2.625E 00	1.415E-03	0.000	0.000
1.836E 01	1.055E 00	0.000	-3.513E 01	0.000	0.000	0.000	1.634E 02	2.625E 00	1.415E-03	0.000	0.000
3.070E 01	2.185E 00	0.000	-1.665E 02	0.000	0.000	0.000	5.053E 02	5.437E 00	2.931E-03	0.000	0.000
3.508E 01	3.889E 00	0.000	-3.633E 02	0.000	0.000	0.000	6.804E 02	9.676E 00	5.216E-03	0.000	0.000
3.518E 01	3.906E 00	5.921E 00	-4.304E 02	0.000	0.000	0.000	6.850E 02	9.718E 00	5.239E-03	1.473E 01	7.942E-03
3.519E 01	3.907E 00	5.886E 00	-4.304E 02	0.000	0.000	0.000	6.853E 02	9.721E 00	5.240E-03	1.465E 01	7.895E-03
3.555E 01	3.965E 00	3.818E 00	-4.376E 02	0.000	0.000	0.000	7.213E 02	9.865E 00	5.319E-03	9.499E 00	5.121E-03
3.586E 01	3.932E 00	2.050F 00	-4.517E 02	-2.586E 02	-2.586E 02	0.000	7.525E 02	9.783E 00	5.274E-03	5.101E 00	2.750E-03
3.606E 01	3.910E 00	2.874E 00	-4.624E 02	-2.617E 02	-2.617E 02	0.000	7.733E 02	9.729E 00	5.245E-03	7.152F 00	3.856E-03
3.648E 01	4.206E 00	4.579E 00	-4.815E 02	-2.681E 02	-2.681E 02	0.000	8.169E 02	1.047E 01	5.642E-03	1.139E 01	6.142E-03
3.701E 01	4.185E 00	6.730E 00	-5.051E 02	-2.930E 02	-2.765E 02	-1.647E 01	8.730E 02	1.041E 01	5.614E-03	1.674E 01	9.027E-03
3.732E 01	4.071E 00	7.975E 00	-5.158E 02	-3.054E 02	-2.816E 02	-2.182E 01	9.059E 02	1.013E 01	5.460E-03	1.984E 01	1.070E-02
3.803E 01	3.805E 00	1.346E 01	-5.288E 02	-3.280E 02	-2.940E 02	-3.396E 01	9.834E 02	9.467E 00	5.104E-03	3.350E 01	1.806E-02
3.834E 01	5.291E 00	1.582E 01	-5.266E 02	-3.390E 02	-2.999E 02	-3.914E 01	1.018E 03	1.316E 01	7.097E-03	3.937E 01	2.123E-02
3.875E 01	7.291E 00	1.541E 01	-5.265E 02	-3.548E 02	-3.088E 02	-4.606E 01	1.065E 03	1.814E 01	9.780E-03	3.834E 01	2.067E-02
3.881E 01	7.566E 00	1.535E 01	-5.266E 02	-3.571E 02	-3.101E 02	-4.701E 01	1.071E 03	1.883E 01	1.015E-02	3.819E 01	2.059E-02
3.901E 01	8.550E 00	1.562E 01	-5.261E 02	-3.654E 02	-3.150E 02	-5.039E 01	1.094E 03	2.127E 01	1.147E-02	3.887E 01	2.096E-02
3.932E 01	1.365E 01	1.604E 01	-5.309E 02	-3.784E 02	-3.230E 02	-5.547E 01	1.130E 03	3.395E 01	1.830E-02	3.990E 01	2.151E-02
3.950E 01	1.669E 01	1.184E 01	-5.396E 02	-3.866E 02	-3.281E 02	-5.848E 01	1.151E 03	4.152E 01	2.238E-02	2.945E 01	1.588E-02
3.981E 01	1.719E 01	4.800E 00	-5.636E 02	-4.008E 02	-3.374E 02	-6.343E 01	1.187E 03	4.277E 01	2.306E-02	1.194E 01	6.439E-03
4.000E 01	1.751E 01	4.608E 00	-5.817E 02	-4.101E 02	-3.436E 02	-6.649E 01	1.209E 03	4.356E 01	2.348E-02	1.147E 01	6.181E-03
4.040E 01	2.077E 01	4.210E 00	-6.216E 02	-4.306E 02	-3.574E 02	-7.320E 01	1.256E 03	5.167E 01	2.786E-02	1.048E 01	5.647E-03
4.041E 01	2.085E 01	4.200E 00	-6.225E 02	-4.311E 02	-3.577E 02	-7.338E 01	1.257E 03	5.188E 01	2.797E-02	1.045E 01	5.634E-03
4.129E 01	2.804E 01	3.323E 00	-7.285E 02	-4.946E 02	-3.917E 02	-1.029E 02	1.362E 03	6.977E 01	3.761E-02	8.268E 00	4.457E-03
4.130E 01	2.812E 01	3.313E 00	-7.298E 02	-4.955E 02	-3.921E 02	-1.034E 02	1.363E 03	6.997E 01	3.772E-02	8.243E 00	4.444E-03
4.137E 01	2.865E 01	3.248E 00	-7.384E 02	-5.014E 02	-3.948E 02	-1.066E 02	1.371E 03	7.129E 01	3.843E-02	8.083E 00	4.357E-03
4.150E 01	2.974E 01	3.956F 00	-7.561E 02	-5.141E 02	-4.004E 02	-1.137E 02	1.386E 03	7.399E 01	3.989E-02	9.843E 00	5.307E-03
4.246E 01	1.766E 01	9.059E 00	-8.308E 02	-6.266E 02	-4.478E 02	-1.788E 02	1.501E 03	4.395E 01	2.369E-02	2.254E 01	1.215E-02
4.409E 01	2.866E 01	1.771E 01	-8.786E 02	-8.777E 02	-5.618E 02	-3.159E 02	1.698E 03	7.132E 01	3.845E-02	4.406E 01	2.375E-02
4.431E 01	3.017E 01	1.838E 01	-8.875E 02	-9.170E 02	-5.811E 02	-3.358E 02	1.725E 03	7.508E 01	4.047E-02	4.574E 01	2.466E-02
4.480E 01	3.349E 01	1.987E 01	-9.096E 02	-1.009E 03	-6.266E 02	-3.824E 02	1.785E 03	8.332E 01	4.492E-02	4.945E 01	2.666E-02
4.480E 01	3.348E 01	1.988E 01	-9.099E 02	-1.009E 03	-6.268E 02	-3.826E 02	1.785E 03	8.331E 01	4.491E-02	4.946E 01	2.666E-02
4.625E 01	2.994E 01	2.428F 01	-9.176E 02	-1.297E 03	-7.621E 02	-5.345E 02	1.963E 03	7.450E 01	4.016E-02	6.041E 01	3.257E-02
4.626E 01	2.992E 01	2.431E 01	-9.171E 02	-1.299E 03	-7.630E 02	-5.357E 02	1.964E 03	7.444E 01	4.013E-02	6.048E 01	3.261E-02
4.731E 01	2.735E 01	2.750E 01	-8.636E 02	-1.507E 03	-8.543E 02	-6.525E 02	2.095E 03	6.805E 01	3.669E-02	6.842E 01	3.689E-02
4.733E 01	2.738E 01	2.755E 01	-8.604E 02	-1.510E 03	-8.558E 02	-6.544E 02	2.097E 03	6.813E 01	3.673E-02	6.855E 01	3.696E-02
4.811E 01	2.880E 01	2.534F 01	-8.004E 02	-1.659E 03	-9.203E 02	-7.383E 02	2.194E 03	7.166E 01	3.863E-02	6.305E 01	3.399E-02
4.877E 01	2.348E 01	2.348E 01	-7.256E 02	-1.775E 03	-9.721E 02	-8.032E 02	2.277E 03	5.843E 01	3.150E-02	5.843E 01	3.150E-02
4.878E 01	2.346E 01	2.346E 01	-7.244E 02	-1.777E 03	-9.729E 02	-8.042E 02	2.278E 03	5.836E 01	3.146E-02	5.836E 01	3.146E-02
4.931E 01	2.196E 01	2.196E 01	-6.617E 02	-1.866E 03	-1.013E 03	-8.529E 02	2.344E 03	5.464E 01	2.945E-02	5.464E 01	2.945E-02
5.072E 01	1.924E 01	1.924E 01	-5.094E 02	-2.079E 03	-1.114E 03	-9.651E 02	2.522E 03	4.787E 01	2.580E-02	4.787E 01	2.580E-02
5.282E 01	1.346E 01	1.346E 01	-3.294E 02	-2.338E 03	-1.246E 03	-1.092E 03	2.788E 03	3.350E 01	1.806E-02	3.350E 01	1.806E-02
5.332E 01	1.238E 01	1.238F 01	-2.958E 02	-2.392E 03	-1.274E 03	-1.118E 03	2.852E 03	3.081E 01	1.661E-02	3.081E 01	1.661E-02
5.407E 01	1.141E 01	1.141E 01	-2.497E 02	-2.468E 03	-1.314E 03	-1.154E 03	2.948E 03	2.839E 01	1.531E-02	2.839E 01	1.531E-02
5.483F 01	1.042E 01	1.042E 01	-2.074E 02	-2.541E 03	-1.352E 03	-1.189E 03	3.045E 03	2.594E 01	1.398E-02	2.594E 01	1.398E-02
5.576E 01	9.647E 00	9.647E 00	-1.605E 02	-2.623E 03	-1.395E 03	-1.228E 03	3.165E 03	2.400E 01	1.294E-02	2.400E 01	1.294E-02
5.625E 01	9.238E 00	9.236E 00	-4.149E 01	-2.662E 03	-1.414E 03	-1.248E 03	3.209E 03	2.298E 01	1.239E-02	2.298E 01	1.239E-02
5.631E 01	5.887E 00	9.192E 00	-3.887E 01	-2.666E 03	-1.416E 03	-1.250E 03	3.216E 03	1.465E 01	7.897E-03	2.287E 01	1.233E-02
5.645E 01	5.867E 00	9.075E 00	-3.292E 01	-2.677E 03	-1.421E 03	-1.255E 03	3.234E 03	1.465E 01	7.897E-03	2.258E 01	1.217E-02
5.653E 01	9.008E 00	9.008E 00	-2.929E 01	-2.682E 03	-1.424E 03	-1.258E 03	3.245E 03	2.241E 01	1.208E-02	2.241E 01	1.208E-02
5.681E 01	8.775E 00	8.775F 00	-1.768E 01	-2.703E 03	-1.434E 03	-1.269F 03	3.280E 03	2.183E 01	1.177E-02	2.183E 01	1.177E-02
5.703E 01	8.775E 00	8.775E 00	-9.146E 00	-2.719E 03	-1.441E 03	-1.277F 03	3.309E 03	2.183E 01	1.177E-02	2.183E 01	1.177E-02
5.776E 01	8.775E 00	8.775F 00	1.465E 01	-2.768E 03	-1.463E 03	-1.305E 03	3.402E 03	2.183E 01	1.177E-02	2.183E 01	1.177E-02
5.878E 01	4.800E 00	4.800E 00	3.037E 01	-2.829E 03	-1.490E 03	-1.339E 03	3.532E 03	1.194E 01	6.439E-03	1.194E 01	6.439E-03
6.079E 01	1.282E 01	1.282E 01	3.242E 01	-2.954E 03	-1.532E 03	-1.422E 03	3.790E 03	3.191E 01	1.720E-02	3.191E 01	1.720E-02
6.221E 01	1.888E 01	1.888E 01	3.242E 01	-3.057E 03	-1.559E 03	-1.498E 03	3.972E 03	4.698E 01	2.533E-02	4.698E 01	2.533E-02

XABS	P-IB	P-OB	PDA	GOX	G-IB	G-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.467E 01	1.616E 01	1.616E 01	3.242E 01	-3.257E 03	-1.616E 03	-1.640E 03	4.289E 03	4.020E 01	2.167E-02	4.020E 01	2.167E-02
6.505E 01	1.451E 01	1.574E 01	3.242E 01	-3.290E 03	-1.626E 03	-1.664E 03	4.337E 03	3.611E 01	1.947E-02	3.916E 01	2.111E-02
6.509E 01	1.451E 01	1.570E 01	3.242E 01	-3.293E 03	-1.627E 03	-1.666E 03	4.342E 03	3.611E 01	1.947E-02	3.905E 01	2.105E-02
6.529E 01	1.393E 01	1.547E 01	3.242E 01	-3.310E 03	-1.633E 03	-1.678E 03	4.368E 03	3.467E 01	1.869E-02	3.850E 01	2.076E-02
6.695E 01	9.140E 00	7.680E 00	1.611E 02	-3.429E 03	-1.669E 03	-1.760E 03	4.583E 03	2.274E 01	1.226E-02	1.911E 01	1.030E-02
6.762E 01	6.088E 00	7.732E 00	3.161E 02	-3.468E 03	-1.680E 03	-1.788E 03	4.665E 03	1.515E 01	8.166E-03	1.924E 01	1.037E-02
6.839E 01	2.580E 00	6.155E 00	4.677E 02	-3.513E 03	-1.691E 03	-1.822E 03	4.760E 03	6.419E 00	3.461E-03	1.531E 01	8.256E-03
6.911E 01	2.428E 00	4.680E 00	5.659E 02	-3.559E 03	-1.699E 03	-1.860E 03	4.848E 03	6.042E 00	3.257E-03	1.164E 01	6.278E-03
6.972E 01	2.300E 00	3.788E 00	6.356E 02	-3.597E 03	-1.705E 03	-1.892E 03	4.922E 03	5.723E 00	3.085E-03	9.426E 00	5.082E-03
7.067E 01	1.897E 00	2.400E 00	7.168E 02	-3.638E 03	-1.712E 03	-1.926E 03	5.036E 03	4.721E 00	2.545E-03	5.972E 00	3.219E-03
7.110E 01	1.715E 00	2.298E 00	7.460E 02	-3.651E 03	-1.715E 03	-1.936E 03	5.088E 03	4.267E 00	2.300E-03	5.718E 00	3.082E-03
7.263E 01	1.191E 00	1.935E 00	8.295E 02	-3.696E 03	-1.724E 03	-1.973E 03	5.273E 03	2.964E 00	1.598E-03	4.815E 00	2.596E-03
7.278E 01	1.140E 00	1.819E 00	8.359E 02	-3.700E 03	-1.724E 03	-1.976E 03	5.290E 03	2.836E 00	1.529E-03	4.526E 00	2.440E-03
7.353E 01	1.198E 00	1.240E 00	8.833E 02	-3.724E 03	-1.728E 03	-1.997E 03	5.374E 03	2.980E 00	1.607E-03	3.085E 00	1.663E-03
7.353E 01	1.198E 00	1.237E 00	8.857E 02	-3.725E 03	-1.728E 03	-1.997E 03	5.375E 03	2.981E 00	1.607E-03	3.078E 00	1.659E-03
7.486E 01	1.300E 00	0.000	9.120E 02	-3.772E 03	-1.733E 03	-2.039E 03	5.427E 03	3.235E 00	1.744E-03	0.000	0.000
7.771E 01	1.630E 00	0.000	9.706E 02	-3.782E 03	-1.742E 03	-2.039E 03	5.525E 03	4.056E 00	2.186E-03	0.000	0.000
8.161E 01	1.410E 00	0.000	1.036E 03	-3.791E 03	-1.751E 03	-2.039E 03	5.630E 03	3.508E 00	1.891E-03	0.000	0.000
8.442E 01	1.470E 00	0.000	1.068E 03	-3.798E 03	-1.759E 03	-2.039E 03	5.684E 03	3.658E 00	1.972E-03	0.000	0.000
8.728E 01	3.100E 00	0.000	1.123E 03	-3.812E 03	-1.772E 03	-2.039E 03	5.707E 03	7.713E 00	4.158E-03	0.000	0.000
8.728E 01	3.103E 00	0.000	1.123E 03	-3.812E 03	-1.773E 03	-2.039E 03	5.707E 03	7.722E 00	4.163E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.156E 02	1.156E 02	2.205E-03	4.344E-02
4.041E 01	1.919E-01	1.158E 02	2.479E-03	3.577E-02
4.129E 01	1.827E 01	1.340E 02	2.645E-03	4.154E-02
4.130E 01	1.974E-01	1.342E 02	2.422E-03	4.420E-02
4.137E 01	1.238E 00	1.355E 02	2.395E-03	4.498E-02
4.150E 01	2.513E 00	1.380E 02	2.408E-03	4.656E-02
4.246E 01	1.828E 01	1.563E 02	2.470E-03	3.845E-02
4.409E 01	2.981E 01	1.861E 02	2.521E-03	5.428E-02
4.431E 01	3.830E 00	1.899E 02	2.538E-03	5.548E-02
4.480E 01	8.287E 00	1.982E 02	2.554E-03	5.819E-02
4.480E 01	3.404E-02	1.982E 02	2.554E-03	5.819E-02
4.625E 01	2.466E 01	2.229E 02	2.883E-03	5.352E-02
4.626E 01	1.663E-01	2.230E 02	2.609E-03	5.854E-02
4.731E 01	1.576E 01	2.388E 02	2.590E-03	5.809E-02
4.733E 01	2.501E-01	2.390E 02	2.681E-03	5.634E-02
4.811E 01	1.120E 01	2.503E 02	2.663E-03	5.523E-02
4.877E 01	9.276E 00	2.595E 02	2.898E-03	4.718E-02
4.878E 01	1.382E-01	2.597E 02	2.669E-03	5.085E-02
4.931E 01	6.815E 00	2.665E 02	2.634E-03	4.855E-02
5.072E 01	1.649E 01	2.830E 02	2.602E-03	4.343E-02
5.282E 01	2.182E 01	3.048E 02	2.608E-03	3.283E-02
5.332E 01	4.880E 00	3.097E 02	2.615E-03	3.067E-02
5.407E 01	7.055E 00	3.167E 02	2.581E-03	2.891E-02
5.483E 01	6.817E 00	3.235E 02	2.570E-03	2.692E-02
5.576E 01	7.977E 00	3.315E 02	2.548E-03	2.552E-02
5.625E 01	2.567E 00	3.341E 02	2.517E-03	2.325E-02
5.631E 01	3.804E-01	3.345E 02	2.701E-03	1.914E-02
5.645E 01	9.813E-01	3.354E 02	2.550E-03	1.987E-02
5.653E 01	6.017E-01	3.361E 02	3.121E-03	1.890E-02
5.681E 01	2.127E 00	3.382E 02	2.684E-03	2.122E-02
5.703E 01	1.588E 00	3.398E 02	2.668E-03	2.128E-02
5.776E 01	5.041E 00	3.448E 02	2.661E-03	2.121E-02
5.878E 01	7.368E 00	3.522E 02	2.652E-03	1.391E-02
6.079E 01	1.340E 01	3.656E 02	2.405E-03	2.955E-02
6.221E 01	8.764E 00	3.743E 02	3.017E-03	2.924E-02
6.467E 01	1.614E 01	3.905E 02	3.166E-03	2.528E-02
6.505E 01	2.420E 00	3.929E 02	3.159E-03	2.418E-02
6.509E 01	2.501E-01	3.931E 02	3.227E-03	2.408E-02
6.529E 01	1.266E 00	3.944E 02	3.222E-03	2.441E-02
6.695E 01	1.031E 01	4.047E 02	3.106E-03	1.825E-02
6.762E 01	3.654E 00	4.084E 02	3.070E-03	1.617E-02
6.839E 01	3.745E 00	4.121E 02	2.989E-03	1.194E-02
6.911E 01	2.993E 00	4.151E 02	2.952E-03	1.034E-02
6.972E 01	2.301E 00	4.174E 02	2.930E-03	9.266E-03
7.067E 01	3.119E 00	4.205E 02	2.880E-03	7.202E-03
7.110E 01	1.259E 00	4.218E 02	2.868E-03	6.843E-03
7.263E 01	4.066E 00	4.259E 02	2.824E-03	5.667E-03
7.278E 01	3.463E-01	4.262E 02	2.814E-03	5.436E-03
7.353E 01	1.574E 00	4.278E 02	2.780E-03	4.667E-03
7.353E 01	2.834E-03	4.278E 02	2.780E-03	4.683E-03
7.486E 01	9.250E-01	4.287E 02	2.784E-03	4.909E-03
7.771E 01	1.911E 00	4.306E 02	2.805E-03	5.792E-03
8.161E 01	2.080E 00	4.327E 02	2.764E-03	5.157E-03
8.442E 01	1.042E 00	4.337E 02	2.758E-03	5.296E-03
8.728E 01	5.506E-01	4.343E 02	2.862E-03	9.154E-03
8.728E 01	0.000	4.343E 02	2.862E-03	9.141E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	657.	(LBF)
MEASURED THRUST	976.	(LBF)
CALCULATED SPECIFIC IMPULSE	1435.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2132.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.2575	
MEASURED THRUST COEFFICIENT	0.3826	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	5909.	(LBF)
NET THRUST	804.	(LBF)
SPECIFIC IMPULSE	1757.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.3153	

MOMENTUM AND FORCES

INLET FRICTION DRAG	115.6	(LBF)
INLET MOMENTUM CHANGE	-737.2	(LBF)
COMBUSTOR FRICTION DRAG	277.3	(LBF)
COMBUSTOR STRUT DRAG	-1.80	(LBF)
COMBUSTOR MOMENTUM CHANGE	345.	(LBF)
NOZZLE FRICTION DRAG	41.39	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1049.	(LBF)
NOZZLE PRESSURE INTEGRAL	1090.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-1085.	(LBF)
TOTAL STRUT DRAG	-1.80	(LBF)
CAVITY FORCE	-1173.	(LBF)
CALCULATED LOAD CELL FORCE	-1601.	(LBF)
MEASURED LOAD CELL FORCE	-1282.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, -134.1, -109.6,		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3069	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.191	(IN)
NOZZLE SHROUD TRAILING EDGE	73.531	(IN)
NOZZLE PLUG TRAILING EDGE	87.283	(IN)
STRUT LEADING EDGE	56.447	(IN)
STRUT TRAILING EDGE	65.047	(IN)
COMBUSTOR EXIT	65.047	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9799	
ADDITIVE DRAG COEFFICIENT	0.0010	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1652	
DELTA PT2	0.1186	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4083	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1675	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8973	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9049	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9404	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8887	
ENTHALPY AT P0 - SUPERSONIC	-1.33	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	35.77	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0171	
EQUIVALENCE RATIO	0.581	
COMBUSTOR EFFICIENCY	0.770	
TOTAL PRESSURE RATIO	0.1247	
COMBUSTOR EFFECTIVENESS	0.6984	
INJECTOR DISCHARGE COEFFICIENTS	0.8431, 0.7415, 0.8984, 0.6782	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9625	
NOZZLE COEFFICIENT - CT	0.8913	
PROCESS EFFICIENCY	0.9101	
KINETIC ENERGY EFFICIENCY	0.9171	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.292	B
1C	44.300	
2A	48.767	D
2C	46.250	E
3A	54.057	
3B	56.242	
4	44.792	

Reading 65

t = 196.43 sec.

3-3-75

READING # 0065 BLOCK # 96 TIME = 196.433 MACH 6.0 PT = 746.749 TT = 3060.0 PAGE 1

RAMJET PERFORMANCE

SUMMARY REPORT

266

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	746.749	3060	689.1(	814)	1.2919	28.852	2610											
0.000	0.402	420	=28.2(	101)	1.3989	28.851	1006	5.954	5991	1.834	0.10710	26.885	0.9801	5107	9.971	190.0		
SPIKE TIP NS		2	0	3														
0.600	18.062	3060	689.1(	814)	1.2917	28.851	2610											
0.600	16.232	2987	666.9(	793)	1.2940	28.851	2581	0.404	1055	2.090	0.10710	26.885	0.9801	4957	1.757	184.4		
WIND TUNNEL		3	0	0														
0.000	746.749	3060	689.1(	814)	1.2919	28.852	2610											
0.000	0.381	414	=29.7(	100)	1.3989	28.851	999	6.005	5997	1.834	0.10321	25.910	0.9801	4926	9.620	190.1		
SPIKE TIP NS		4	0	0														
0.600	18.062	3060	689.1(	814)	1.2917	28.851	2610											
0.600	16.381	2993	668.7(	794)	1.2938	28.851	2583	0.391	1010	2.090	0.10321	25.910	0.9801	4925	1.620	190.1		
INLET THROAT		5	0	3														
40.400	318.846	2990	667.9(	794)	1.2940	28.851	2582											
40.400	15.155	1421	221.7(	351)	1.3534	28.851	1820	2.596	4725	1.886	0.94106	26.885	0.1115	4382	69.108	163.0		
INLET UPNRSK		6	0	3														
40.400	318.846	2990	667.9(	794)	1.2940	28.851	2582											
40.400	13.035	1366	207.3(	337)	1.3567	28.851	1787	2.687	4801	1.886	0.85551	26.885	0.1227	4422	63.835	164.5		
INLET DNNRSK		7	0	4														
40.400	125.387	2990	668.0(	794)	1.2940	28.851	2582											
40.400	108.127	2891	638.0(	764)	1.2971	28.851	2542	0.462	1225	1.950	0.85551	26.885	0.1227	4422	16.289	164.5		
COMBUSTOR	0	8	1	21														
40.410	270.468	2950	670.3(	815)	1.2963	27.612	2624											
40.410	14.212	1433	221.3(	370)	1.3539	27.612	1869	2.536	4740	1.965	0.94426	26.980	0.1116	4381	69.553	162.4	0.12	0.07
COMBUSTOR	0	9	2	21														
41.292	204.560	2879	673.2(	827)	1.3002	26.435	2653											
41.292	17.294	1572	269.5(	426)	1.3479	26.435	1996	2.252	4494	2.046	0.94964	27.075	0.1113	4274	66.329	157.9	0.24	0.04
COMBUSTOR	0	10	3	21														
41.302	214.518	2837	673.1(	814)	1.3022	26.391	2638											
41.302	17.286	1527	269.9(	413)	1.3507	26.390	1971	2.279	4492	2.039	0.94994	27.075	0.1113	4273	66.313	157.8	0.24	0.01
COMBUSTOR	0	11	4	21														
41.367	213.160	2830	672.9(	812)	1.3025	26.384	2635											
41.367	17.513	1530	272.8(	414)	1.3506	26.384	1973	2.267	4474	2.038	0.94998	27.075	0.1113	4264	66.050	157.5	0.24	0.00
COMBUSTOR	0	12	5	21														
41.500	208.376	2827	672.3(	811)	1.3026	26.383	2634											
41.500	18.801	1566	283.5(	425)	1.3487	26.383	1995	2.211	4410	2.040	0.95105	27.075	0.1111	4247	65.185	156.8	0.24	0.00
COMBUSTOR	0	13	6	21														
42.460	156.629	3009	667.0(	866)	1.2940	26.593	2698											
42.460	19.054	1816	293.5(	496)	1.3351	26.593	2129	2.030	4323	2.077	0.94211	27.075	0.1122	4185	63.293	154.6	0.24	0.17
COMBUSTOR	0	14	7	5														
44.087	122.499	3472	654.5(1007)		1.2714	27.151	2843											
44.087	38.751	2690	396.0(	757)	1.2978	27.155	2528	1.425	3596	2.124	0.91034	27.075	0.1161	4179	50.879	154.3	0.24	0.62
COMBUSTOR	0	15	8	3														
44.310	120.317	3507	652.4(1018)		1.2696	27.199	2853											
44.310	40.202	2755	402.5(	777)	1.2951	27.203	2554	1.385	3536	2.127	0.90828	27.075	0.1164	4174	49.910	154.2	0.24	0.66
COMBUSTOR	0	16	9	3														
44.800	116.165	3562	647.2(1035)		1.2665	27.280	2867											
44.800	43.390	2875	416.9(	814)	1.2901	27.286	2600	1.306	3394	2.131	0.90446	27.075	0.1169	4155	47.707	153.5	0.24	0.72
COMBUSTOR	0	17	10	2														
44.802	116.194	3561	647.1(1035)		1.2666	27.280	2867											
44.802	43.387	2874	416.9(	813)	1.2901	27.286	2599	1.306	3394	2.131	0.90476	27.075	0.1168	4155	47.725	153.5	0.24	0.72
COMBUSTOR	0	18	11	6														
46.250	107.237	3124	648.6(	987)	1.2892	24.377	2866											
46.250	41.490	2510	431.3(	774)	1.3096	24.378	2589	1.274	3298	2.279	0.86012	27.315	0.1240	4117	44.081	150.7	0.55	0.23

	P	T	M	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	M	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 2														
46.260	107.170	3125	648.5(987)	1.2892	24.379	2866											
46.260	41.477	2511	431.1(774)	1.3096	24.380	2589	1.274	3298	2.279	0.85949	27.315	0.1241	4118	44.050	150.6	0.55	0.23
COMBUSTOR	0	20	13 4														
47.310	100.745	3245	635.4(1027)	1.2830	24.536	2904											
47.310	40.101	2633	416.7(813)	1.3034	24.537	2637	1.254	3308	2.291	0.79991	27.315	0.1333	4178	41.118	152.9	0.55	0.30
COMBUSTOR	0	21	14 3														
47.327	100.477	3253	635.2(1030)	1.2826	24.545	2907											
47.327	40.085	2642	416.5(816)	1.3030	24.547	2641	1.253	3308	2.292	0.79724	27.315	0.1338	4182	40.985	153.1	0.55	0.31
COMBUSTOR	0	22	15 4														
48.110	95.919	3362	625.9(1066)	1.2770	24.682	2941											
48.110	37.596	2727	397.0(843)	1.2985	24.685	2670	1.267	3384	2.302	0.74542	27.315	0.1431	4251	39.207	155.6	0.55	0.36
COMBUSTOR	0	23	16 6														
48.767	91.615	3067	630.6(1046)	1.2924	22.494	2960											
48.767	32.318	2406	379.7(799)	1.3145	22.495	2644	1.340	3543	2.437	0.69286	27.542	0.1552	4318	38.151	156.8	0.83	0.21
COMBUSTOR	0	24	17 2														
48.777	91.545	3069	630.5(1047)	1.2923	22.496	2960											
48.777	32.276	2407	379.3(799)	1.3145	22.497	2644	1.341	3545	2.437	0.69196	27.542	0.1554	4319	38.121	156.8	0.83	0.21
COMBUSTOR	0	25	18 4														
49.307	87.954	3169	625.3(1083)	1.2874	22.600	2996											
49.307	30.037	2474	359.8(822)	1.3107	22.602	2671	1.365	3645	2.448	0.64715	27.542	0.1662	4398	36.656	159.7	0.83	0.24
COMBUSTOR	0	26	19 5														
50.717	77.715	3519	613.0(1211)	1.2697	22.963	3110											
50.717	27.806	2807	332.6(939)	1.2944	22.968	2805	1.336	3746	2.483	0.55155	27.542	0.1950	4595	32.109	166.8	0.83	-0.36
COMBUSTOR	0	27	20 4														
52.817	72.354	3699	597.7(1276)	1.2594	23.179	3161											
52.817	19.950	2800	240.3(932)	1.2917	23.190	2785	1.518	4229	2.499	0.45206	27.542	0.2379	4835	29.706	175.6	0.83	0.43
COMBUSTOR	0	28	21 4														
53.317	70.451	3762	594.5(1299)	1.2557	23.250	3179											
53.317	19.155	2847	228.3(948)	1.2892	23.264	2801	1.528	4280	2.504	0.43358	27.542	0.2480	4881	28.840	177.2	0.83	0.45
COMBUSTOR	0	29	22 4														
54.067	69.046	3800	589.9(1313)	1.2534	23.300	3188											
54.067	17.426	2833	202.4(942)	1.2890	23.315	2790	1.578	4403	2.508	0.40871	27.542	0.2631	4944	27.968	179.5	0.83	0.47
COMBUSTOR	0	30	23 3														
54.827	68.445	3807	585.5(1315)	1.2528	23.318	3189											
54.827	15.675	2778	174.3(921)	1.2906	23.334	2764	1.641	4536	2.508	0.38650	27.542	0.2782	5000	27.246	181.5	0.83	0.48
COMBUSTOR	0	31	24 3														
55.760	67.240	3831	580.6(1324)	1.2512	23.354	3194											
55.760	14.137	2746	147.1(908)	1.2913	23.372	2746	1.696	4658	2.510	0.36270	27.542	0.2965	5061	26.254	183.7	0.83	0.49
COMBUSTOR	0	32	25 5														
56.252	52.223	4240	578.3(1476)	1.2228	23.793	3292											
56.252	13.327	3248	152.9(1089)	1.2666	23.853	2928	1.576	4614	2.551	0.29225	27.542	0.3679	5206	20.954	189.0	0.83	0.64
COMBUSTOR	0	33	26 5														
56.307	61.961	3851	578.1(1331)	1.2496	23.381	3199											
56.307	10.106	2609	84.6(857)	1.2956	23.401	2680	1.854	4969	2.518	0.29148	27.542	0.3689	5209	22.510	189.1	0.83	0.50
COMBUSTOR	0	34	27 3														
56.447	61.877	3854	577.5(1332)	1.2494	23.386	3200											
56.447	9.990	2606	81.4(896)	1.2956	23.406	2678	1.861	4983	2.518	0.28933	27.542	0.3717	5216	22.404	189.4	0.83	0.50
COMBUSTOR	0	35	28 7														
56.527	53.567	4208	577.2(1464)	1.2253	23.761	3285											
56.527	12.874	3176	138.8(1062)	1.2699	23.817	2901	1.614	4683	2.547	0.29262	27.542	0.3675	5221	21.298	189.6	0.83	0.62
COMBUSTOR	0	36	29 3														
56.807	54.690	4178	576.0(1453)	1.2276	23.731	3278											
56.807	12.412	3108	125.7(1037)	1.2730	23.783	2876	1.650	4747	2.544	0.29176	27.542	0.3686	5235	21.522	190.1	0.83	0.61
COMBUSTOR	0	37	30 4														
57.033	55.986	4136	575.1(1437)	1.2306	23.689	3268											
57.033	11.929	3027	112.9(1007)	1.2766	23.734	2845	1.690	4809	2.540	0.29106	27.542	0.3695	5245	21.751	190.4	0.83	0.60

READING = 0065 BLOCK = 96 TIME = 196.435 MACH 6.0 PT = 746.749 TT = 3060.0

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	B	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 4														
57.757	60.417	3988	572.2(1582)	1.2408	23.569	3233											
57.757	10.380	2758	74.4(909)	1.2883	23.569	2738	1.825	4991	2.526	0.28654	27.542	0.3753	5270	22.224	191.3	0.83	0.55
COMBUSTOR	0	39	32 8														
58.777	113.265	3247	568.9(1109)	1.2821	22.808	3013											
58.777	5.475	1575	-46.6(499)	1.3442	22.810	2148	2.583	5550	2.426	0.28472	27.542	0.3777	5280	24.556	191.7	0.83	0.31
COMBUSTOR	0	40	33 7														
60.787	48.680	4681	563.4(1640)	1.1866	24.321	3370											
60.787	17.137	3949	196.6(1348)	1.2234	24.488	3132	1.368	4284	2.569	0.29462	27.542	0.3650	5269	19.614	191.3	0.83	0.83
COMBUSTOR	0	41	34 4														
62.207	51.768	4521	559.1(1580)	1.2007	24.152	3343											
62.207	15.825	3665	161.3(1241)	1.2426	24.271	3054	1.461	4462	2.559	0.30261	27.542	0.3553	5260	20.982	191.0	0.83	0.76
COMBUSTOR	0	42	35 5														
64.671	45.291	4833	550.5(1697)	1.1717	24.527	3388											
64.671	19.405	4275	239.1(1471)	1.1972	24.741	3207	1.231	3947	2.576	0.28684	27.542	0.3749	5242	17.595	190.3	0.83	0.92
COMBUSTOR	0	43	36 4														
65.047	41.473	4918	548.9(1729)	1.1625	24.627	3397											
65.047	19.801	4459	270.6(1541)	1.1802	24.865	3244	1.151	3732	2.582	0.26667	27.542	0.4032	5240	15.466	190.2	0.83	0.98
COMBUSTOR REGEN		44	37 5														
65.047	41.473	5055	660.9(1787)	1.1557	24.481	3445											
65.047	23.023	4705	428.9(1642)	1.1653	24.711	3321	1.026	3408	2.605	0.26667	27.542	0.4032	5295	14.122	192.3	0.83	0.98
NOZZLE AE		45	38 5														
87.283	41.473	4918	548.9(1674)	1.1625	24.627	3397											
87.283	1.263	2686	-507.0(858)	1.2731	25.091	2603	2.793	7269	2.582	0.05551	27.542	1.9371	6849	6.271	248.7	0.83	0.98
NOZZLE PO		46	39 5														
87.283	41.473	4918	548.9(1674)	1.1625	24.627	3397											
87.283	0.402	2085	-722.4(643)	1.2957	25.092	2313	3.448	7976	2.582	0.02498	27.542	4.3039	7271	3.097	264.0	0.83	0.98
NOZZLE AE REGEN		47	40 5														
87.283	41.473	5055	660.9(1787)	1.1557	24.481	3445											
87.283	1.334	2885	-432.6(931)	1.2654	25.089	2690	2.750	7397	2.605	0.05551	27.542	1.9371	6994	6.581	253.9	0.83	0.98
NOZZLE PO REGEN		48	41 5														
87.283	41.473	5055	660.9(1787)	1.1557	24.481	3445											
87.283	0.402	2223	-674.1(691)	1.2901	25.092	2384	3.429	8173	2.605	0.02401	27.542	4.4785	7458	3.050	270.8	0.83	0.98
FICTIVE COMBUSTR		68	61 0														
65.047	318.846	5123	548.9(1807)	1.1823	24.859	3481											
65.047	0.402	1288	-1007.0(379)	1.3377	25.155	1845	4.782	8824	2.418	0.04485	27.542	2.3974	7800	6.151	283.2	0.83	1.00
FICTIVE NOZZLE		69	62 0														
87.283	26.621	4840	522.0(1698)	1.1596	24.612	3367											
87.283	1.552	3039	-373.8(988)	1.2590	25.087	2754	2.432	6695	2.613	0.05551	27.542	1.9371	6502	5.776	236.1	0.83	0.98

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OB/PT0
6.981E-01	1.060E 00	0.000	-4.406E-01	0.000	0.000	0.000	2.470E-02	2.636E 00	1.419E-03	0.000	0.000
1.836E 01	1.060E 00	0.000	-3.529E 01	0.000	0.000	0.000	1.634E 02	2.636E 00	1.419E-03	0.000	0.000
3.070E 01	2.195E 00	0.000	-1.672E 02	0.000	0.000	0.000	5.053E 02	5.458E 00	2.939E-03	0.000	0.000
3.508E 01	3.896E 00	0.000	-3.646E 02	0.000	0.000	0.000	6.804E 02	9.688E 00	5.218E-03	0.000	0.000
3.518E 01	3.919E 00	5.923E 00	-4.318E 02	0.000	0.000	0.000	6.850E 02	9.745E 00	5.249E-03	1.473E 01	7.932E-03
3.519E 01	3.921E 00	5.891E 00	-4.318E 02	0.000	0.000	0.000	6.853E 02	9.749E 00	5.250E-03	1.465E 01	7.888E-03
3.555E 01	4.000E 00	3.927E 00	-4.389E 02	0.000	0.000	0.000	7.213E 02	9.946E 00	5.357E-03	9.765E 00	5.259E-03
3.586E 01	3.964E 00	2.250E 00	-4.527E 02	-3.518E 02	-3.518E 02	0.000	7.525E 02	9.856E 00	5.308E-03	5.594E 00	3.013E-03
3.606E 01	3.940E 00	3.047E 00	-4.632E 02	-3.559E 02	-3.559E 02	0.000	7.733E 02	9.796E 00	5.276E-03	7.575E 00	4.080E-03
3.648E 01	4.207E 00	4.693E 00	-4.817E 02	-3.646E 02	-3.646E 02	0.000	8.169E 02	1.046E 01	5.634E-03	1.167E 01	6.285E-03
3.701E 01	4.220E 00	6.772E 00	-5.052E 02	-3.949E 02	-3.761E 02	-1.875E 01	8.730E 02	1.049E 01	5.651E-03	1.684E 01	9.068E-03
3.732E 01	4.106E 00	7.975E 00	-5.161E 02	-4.079E 02	-3.830E 02	-2.484E 01	9.059E 02	1.021E 01	5.498E-03	1.983E 01	1.068E-02
3.803E 01	3.840E 00	1.339F 01	-5.298E 02	-4.386E 02	-4.000E 02	-3.862E 01	9.838E 02	9.548E 00	5.142E-03	3.330E 01	1.794E-02
3.834E 01	5.453E 00	1.572E 01	-5.283E 02	-4.525E 02	-4.080E 02	-4.449E 01	1.018E 03	1.356E 01	7.302E-03	3.910E 01	2.106E-02
3.875E 01	7.624E 00	1.540E 01	-5.298E 02	-4.724E 02	-4.201E 02	-5.233E 01	1.065E 03	1.896E 01	1.021E-02	3.828E 01	2.062E-02
3.881E 01	7.923E 00	1.535E 01	-5.301E 02	-4.753E 02	-4.219E 02	-5.340E 01	1.071E 03	1.970E 01	1.061E-02	3.817E 01	2.056E-02
3.901E 01	8.990E 00	1.564E 01	-5.305E 02	-4.857E 02	-4.285E 02	-5.723E 01	1.094E 03	2.235E 01	1.204E-02	3.890E 01	2.095E-02
3.932E 01	1.401E 01	1.609E 01	-5.365E 02	-5.024E 02	-4.394E 02	-6.297E 01	1.130E 03	3.485E 01	1.877E-02	4.000E 01	2.154E-02
3.950E 01	1.701E 01	1.314E 01	-5.450E 02	-5.127E 02	-4.464E 02	-6.637E 01	1.151E 03	4.230E 01	2.278E-02	3.267E 01	1.760E-02
3.981E 01	1.737E 01	8.200E 00	-5.653E 02	-5.309E 02	-4.590E 02	-7.195E 01	1.187E 03	4.319E 01	2.326E-02	2.039E 01	1.098E-02
4.000E 01	1.759E 01	8.002E 00	-5.796E 02	-5.429E 02	-4.675E 02	-7.541E 01	1.209E 03	4.375E 01	2.356E-02	1.990E 01	1.072E-02
4.040E 01	2.076E 01	7.593E 00	-6.116E 02	-5.692E 02	-4.862E 02	-8.299E 01	1.256E 03	5.162E 01	2.780E-02	1.880E 01	1.017E-02
4.041E 01	2.084E 01	7.983E 00	-6.123E 02	-5.699E 02	-4.867E 02	-8.319E 01	1.257E 03	5.182E 01	2.791E-02	1.885E 01	1.015E-02
4.129E 01	2.783E 01	6.681E 00	-7.009E 02	-6.502E 02	-5.328E 02	-1.173E 02	1.362E 03	6.919E 01	3.726E-02	1.661E 01	8.947E-03
4.130E 01	2.791E 01	6.671E 00	-7.020E 02	-6.513E 02	-5.334E 02	-1.179E 02	1.363E 03	6.938E 01	3.737E-02	1.659E 01	8.934E-03
4.137E 01	2.842E 01	6.605E 00	-7.094E 02	-6.588E 02	-5.371E 02	-1.217E 02	1.371E 03	7.067E 01	3.806E-02	1.642E 01	8.845E-03
4.150E 01	2.947E 01	6.126E 00	-7.244E 02	-6.747E 02	-5.447E 02	-1.300E 02	1.386E 03	7.329E 01	3.947E-02	2.021E 01	1.088E-02
4.246E 01	1.901E 01	1.910E 01	-7.680E 02	-8.178E 02	-6.119E 02	-2.059E 02	1.501E 03	4.727E 01	2.546E-02	4.748E 01	2.557E-02
4.409E 01	3.982E 01	3.768E 01	-7.463E 02	-1.157E 03	-7.941E 02	-3.633E 02	1.698E 03	9.900E 01	5.332E-02	9.370E 01	5.046E-02
4.431E 01	4.267E 01	3.773E 01	-7.476E 02	-1.214E 03	-8.268E 02	-3.870E 02	1.725E 03	1.061E 02	3.714E-02	9.382E 01	5.053E-02
4.480E 01	4.894E 01	3.784E 01	-7.580E 02	-1.355E 03	-9.047E 02	-4.501E 02	1.785E 03	1.217E 02	6.553E-02	9.409E 01	5.068E-02
4.480E 01	4.893E 01	3.784E 01	-7.584E 02	-1.355E 03	-9.051E 02	-4.503E 02	1.785E 03	1.217E 02	6.553E-02	9.409E 01	5.068E-02
4.625E 01	4.482E 01	3.816E 01	-7.329E 02	-1.832E 03	-1.138E 03	-6.937E 02	1.963E 03	1.114E 02	6.002E-02	9.489E 01	5.110E-02
4.626E 01	4.479E 01	3.816E 01	-7.321E 02	-1.835E 03	-1.140E 03	-6.956E 02	1.964E 03	1.114E 02	5.998E-02	9.489E 01	5.111E-02
4.731E 01	4.181E 01	3.840E 01	-6.539E 02	-2.194E 03	-1.296E 03	-8.975E 02	2.095E 03	1.039E 02	5.598E-02	9.547E 01	5.142E-02
4.733E 01	4.177E 01	3.840E 01	-6.513E 02	-2.200E 03	-1.299E 03	-9.008E 02	2.097E 03	1.039E 02	5.594E-02	9.548E 01	5.142E-02
4.811E 01	4.010E 01	3.509E 01	-5.710E 02	-2.452E 03	-1.409E 03	-1.042E 03	2.194E 03	9.970E 01	5.370E-02	8.725E 01	4.699E-02
4.877E 01	3.232E 01	3.232E 01	-4.678E 02	-2.643E 03	-1.498E 03	-1.146E 03	2.277E 03	8.036E 01	4.328E-02	8.036E 01	4.328E-02
4.878E 01	3.228E 01	3.228E 01	-4.662E 02	-2.646E 03	-1.499E 03	-1.147E 03	2.278E 03	8.025E 01	4.322E-02	8.025E 01	4.322E-02
4.931E 01	3.004E 01	3.004E 01	-3.801E 02	-2.788E 03	-1.567E 03	-1.220E 03	2.344E 03	7.469E 01	4.022E-02	7.469E 01	4.022E-02
5.072E 01	2.781E 01	2.781E 01	-1.663E 02	-3.127E 03	-1.735E 03	-1.391E 03	2.522E 03	6.914E 01	3.724E-02	6.914E 01	3.724E-02
5.282E 01	1.995E 01	1.995E 01	9.666E 01	-3.950E 03	-1.951E 03	-1.598E 03	2.788E 03	4.960E 01	2.672E-02	4.960E 01	2.672E-02
5.332E 01	1.915E 01	1.915E 01	1.475E 02	-3.638E 03	-1.997E 03	-1.641E 03	2.852E 03	4.763E 01	2.565E-02	4.763E 01	2.565E-02
5.407E 01	1.743E 01	1.743E 01	2.183E 02	-3.764E 03	-2.060E 03	-1.704E 03	2.948E 03	4.333E 01	2.334E-02	4.333E 01	2.334E-02
5.483E 01	1.567E 01	1.567E 01	2.824E 02	-3.884E 03	-2.120E 03	-1.764E 03	3.045E 03	3.897E 01	2.099E-02	3.897E 01	2.099E-02
5.576E 01	1.414E 01	1.414E 01	3.522E 02	-4.019E 03	-2.185E 03	-1.833E 03	3.165E 03	3.515E 01	1.893E-02	3.515E 01	1.893E-02
5.625E 01	1.333E 01	1.333E 01	4.999E 02	-4.082E 03	-2.214E 03	-1.868E 03	3.209E 03	3.314E 01	1.785E-02	3.314E 01	1.785E-02
5.631E 01	6.975E 00	1.324E 01	5.037E 02	-4.088E 03	-2.217E 03	-1.871E 03	3.216E 03	1.734E 01	9.340E-03	3.291E 01	1.773E-02
5.645E 01	6.975E 00	1.301E 01	5.123E 02	-4.105E 03	-2.224E 03	-1.881E 03	3.234E 03	1.734E 01	9.340E-03	3.234E 01	1.742E-02
5.653E 01	1.287E 01	1.287E 01	5.175E 02	-4.114E 03	-2.228E 03	-1.886E 03	3.245E 03	3.201E 01	1.724E-02	3.201E 01	1.724E-02
5.681E 01	1.241E 01	1.241E 01	5.340E 02	-4.147E 03	-2.241E 03	-1.905E 03	3.280E 03	3.086E 01	1.662E-02	3.086E 01	1.662E-02
5.703E 01	1.193E 01	1.193E 01	5.458E 02	-4.172E 03	-2.252E 03	-1.920E 03	3.309E 03	2.966E 01	1.597E-02	2.966E 01	1.597E-02
5.776E 01	1.038E 01	1.038E 01	5.761E 02	-4.250E 03	-2.281E 03	-1.969E 03	3.402E 03	2.581E 01	1.390E-02	2.581E 01	1.390E-02
5.878E 01	5.475E 00	5.475E 00	5.944E 02	-4.340E 03	-2.315E 03	-2.026E 03	3.532E 03	1.361E 01	7.332E-03	1.361E 01	7.332E-03
6.079E 01	1.714E 01	1.714E 01	5.970E 02	-4.494E 03	-2.360E 03	-2.134E 03	3.790E 03	4.261E 01	2.295E-02	4.261E 01	2.295E-02
6.221E 01	1.582E 01	1.582E 01	5.970E 02	-4.610E 03	-2.392E 03	-2.219E 03	3.972E 03	3.935E 01	2.119E-02	3.935E 01	2.119E-02

XABS	P=IB	P=OB	PDA	QOX	Q=IB	Q=OB	CAWALL	P=IB/PSO	P=IB/PIO	P=OB/PSO	P=OB/PIO
6.467E 01	1.940E 01	1.940E 01	5.970E 02	-4.850E 03	-2.476E 03	-2.374E 03	4.289E 03	4.825E 01	2.599E-02	4.825E 01	2.599E-02
6.505E 01	1.965E 01	1.995E 01	5.970E 02	-4.892E 03	-2.493E 03	-2.400E 03	4.337E 03	4.886E 01	2.631E-02	4.961E 01	2.672E-02
6.509E 01	1.965E 01	2.001E 01	5.970E 02	-4.897E 03	-2.495E 03	-2.403E 03	4.342E 03	4.886E 01	2.631E-02	4.975E 01	2.680E-02
6.529E 01	1.867E 01	2.030E 01	5.970E 02	-4.919E 03	-2.503E 03	-2.416E 03	4.368E 03	4.643E 01	2.500E-02	5.047E 01	2.718E-02
6.695E 01	1.056E 01	9.640E 00	7.621E 02	-5.082E 03	-2.564E 03	-2.518E 03	4.583E 03	2.626E 01	1.414E-02	2.397E 01	1.291E-02
6.762E 01	7.457E 00	9.157E 00	9.483E 02	-5.136E 03	-2.581E 03	-2.555E 03	4.665E 03	1.854E 01	9.985E-03	2.277E 01	1.226E-02
6.839E 01	3.890E 00	6.960E 00	1.135E 03	-5.199E 03	-2.598E 03	-2.601E 03	4.760E 03	9.672E 00	5.209E-03	1.731E 01	9.320E-03
6.911E 01	3.362E 00	4.905E 00	1.255E 03	-5.262E 03	-2.610E 03	-2.651E 03	4.848E 03	8.360E 00	4.502E-03	1.220E 01	6.568E-03
6.972E 01	2.915E 00	3.970E 00	1.337E 03	-5.312E 03	-2.618E 03	-2.694E 03	4.922E 03	7.248E 00	3.904E-03	9.872E 00	5.317E-03
7.067E 01	2.127E 00	2.515E 00	1.428E 03	-5.374E 03	-2.628E 03	-2.746E 03	5.036E 03	5.288E 00	2.848E-03	6.253E 00	3.368E-03
7.110E 01	1.770E 00	2.366E 00	1.459E 03	-5.397E 03	-2.632E 03	-2.765E 03	5.088E 03	4.401E 00	2.370E-03	5.882E 00	3.168E-03
7.263E 01	1.547E 00	1.835E 00	1.547E 03	-5.461E 03	-2.643E 03	-2.818E 03	5.273E 03	3.846E 00	2.071E-03	4.563E 00	2.457E-03
7.278E 01	1.525E 00	1.756E 00	1.555E 03	-5.466E 03	-2.644E 03	-2.822E 03	5.290E 03	3.792E 00	2.042E-03	4.366E 00	2.351E-03
7.353E 01	1.464E 00	1.360E 00	1.607E 03	-5.496E 03	-2.649E 03	-2.847E 03	5.374E 03	3.639E 00	1.960E-03	3.382E 00	1.821E-03
7.353E 01	1.463E 00	1.358E 00	1.609E 03	-5.496E 03	-2.649E 03	-2.847E 03	5.375E 03	3.639E 00	1.960E-03	3.376E 00	1.818E-03
7.486E 01	1.355E 00	0.000	1.639E 03	-5.555E 03	-2.657E 03	-2.899E 03	5.427E 03	3.369E 00	1.815E-03	0.000	0.000
7.771E 01	2.600E 00	0.000	1.718E 03	-5.570E 03	-2.672E 03	-2.899E 03	5.525E 03	6.465E 00	3.482E-03	0.000	0.000
8.161E 01	1.840E 00	0.000	1.813E 03	-5.588E 03	-2.690E 03	-2.899E 03	5.630E 03	4.575E 00	2.464E-03	0.000	0.000
8.442E 01	1.500E 00	0.000	1.850E 03	-5.605E 03	-2.707E 03	-2.899E 03	5.684E 03	3.730E 00	2.009E-03	0.000	0.000
8.728E 01	3.145E 00	0.000	1.906E 03	-5.633E 03	-2.734E 03	-2.899E 03	5.707E 03	7.820E 00	4.212E-03	0.000	0.000
8.728E 01	3.148E 00	0.000	1.906E 03	-5.633E 03	-2.735E 03	-2.899E 03	5.707E 03	7.828E 00	4.216E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.185E 02	1.185E 02	2.172E-03	4.267E-02
4.041E 01	1.897E-01	1.187E 02	2.462E-03	3.940E-02
4.129E 01	1.796E 01	1.367E 02	2.607E-03	4.468E-02
4.130E 01	1.938E-01	1.368E 02	2.387E-03	4.774E-02
4.137E 01	1.215E 00	1.381E 02	2.359E-03	4.852E-02
4.150E 01	2.466E 00	1.405E 02	2.373E-03	5.082E-02
4.246E 01	1.761E 01	1.581E 02	2.400E-03	5.028E-02
4.409E 01	2.823E 01	1.864E 02	2.623E-03	7.225E-02
4.431E 01	3.757E 00	1.901E 02	2.879E-03	6.701E-02
4.480E 01	8.436E 00	1.986E 02	2.901E-03	6.817E-02
4.480E 01	3.454E-02	1.986E 02	2.901E-03	6.817E-02
4.625E 01	2.490E 01	2.235E 02	3.198E-03	6.155E-02
4.626E 01	1.758E-01	2.237E 02	3.198E-03	6.155E-02
4.731E 01	1.667E 01	2.403E 02	2.816E-03	6.759E-02
4.733E 01	2.463E-01	2.406E 02	2.816E-03	6.759E-02
4.811E 01	1.110E 01	2.517E 02	2.860E-03	6.321E-02
4.877E 01	9.512E 00	2.612E 02	3.124E-03	5.465E-02
4.878E 01	1.421E-01	2.613E 02	2.827E-03	6.035E-02
4.931E 01	6.979E 00	2.683E 02	2.789E-03	5.792E-02
5.072E 01	1.695E 01	2.853E 02	2.765E-03	5.370E-02
5.282E 01	2.292E 01	3.082E 02	2.805E-03	4.196E-02
5.332E 01	5.308E 00	3.135E 02	2.886E-03	3.947E-02
5.407E 01	7.850E 00	3.214E 02	2.883E-03	3.662E-02
5.483E 01	7.733E 00	3.291E 02	2.870E-03	3.419E-02
5.576E 01	9.165E 00	3.383E 02	2.843E-03	3.185E-02
5.625E 01	2.963E 00	3.412E 02	2.808E-03	2.866E-02
5.631E 01	4.425E-01	3.417E 02	2.973E-03	2.307E-02
5.645E 01	1.146E 00	3.428E 02	2.769E-03	2.425E-02
5.653E 01	6.814E-01	3.435E 02	3.324E-03	2.432E-02
5.681E 01	2.397E 00	3.459E 02	2.952E-03	2.633E-02
5.703E 01	1.834E 00	3.477E 02	2.926E-03	2.585E-02
5.776E 01	5.909E 00	3.536E 02	2.877E-03	2.389E-02
5.878E 01	8.648E 00	3.623E 02	2.780E-03	1.877E-02
6.079E 01	1.519E 01	3.775E 02	2.552E-03	3.637E-02
6.221E 01	1.053E 01	3.880E 02	3.142E-03	2.848E-02
6.467E 01	1.915E 01	4.071E 02	3.139E-03	3.091E-02
6.505E 01	2.575E 00	4.097E 02	3.319E-03	2.870E-02
6.509E 01	2.680E-01	4.100E 02	3.434E-03	2.910E-02
6.529E 01	1.366E 00	4.113E 02	3.430E-03	2.894E-02
6.695E 01	1.151E 01	4.229E 02	3.328E-03	2.130E-02
6.762E 01	4.232E 00	4.271E 02	3.300E-03	1.894E-02
6.839E 01	4.405E 00	4.315E 02	3.239E-03	1.436E-02
6.911E 01	3.522E 00	4.350E 02	3.198E-03	1.189E-02
6.972E 01	2.652E 00	4.377E 02	3.174E-03	1.044E-02
7.067E 01	3.526E 00	4.412E 02	3.123E-03	7.835E-03
7.110E 01	1.385E 00	4.426E 02	3.107E-03	7.168E-03
7.263E 01	4.470E 00	4.471E 02	3.075E-03	6.167E-03
7.278E 01	3.893E-01	4.474E 02	3.070E-03	6.025E-03
7.353E 01	1.806E 00	4.492E 02	3.046E-03	5.368E-03
7.353E 01	3.300E-03	4.492E 02	3.046E-03	5.364E-03
7.486E 01	1.042E 00	4.503E 02	3.033E-03	5.168E-03
7.771E 01	2.393E 00	4.527E 02	3.103E-03	8.415E-03
8.161E 01	2.758E 00	4.554E 02	3.036E-03	6.461E-03
8.442E 01	1.209E 00	4.567E 02	2.996E-03	5.509E-03
8.728E 01	5.936E-01	4.572E 02	3.081E-03	9.512E-03
8.728E 01	0.000	4.572E 02	3.081E-03	9.520E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1390.	(LBF)
MEASURED THRUST	1318.	(LBF)
CALCULATED SPECIFIC IMPULSE	2114.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2005.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.5442	
MEASURED THRUST COEFFICIENT	0.5162	

REGENERATIVE-CUDLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	6639.	(LBF)
NET THRUST	1527.	(LBF)
SPECIFIC IMPULSE	2323.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.5979	

MOMENTUM AND FORCES

INLET FRICTION DRAG	118.5	(LBF)
INLET MOMENTUM CHANGE	-730.1	(LBF)
COMBUSTOR FRICTION DRAG	291.2	(LBF)
COMBUSTOR STRUT DRAG	-5.72	(LBF)
COMBUSTOR MOMENTUM CHANGE	858.	(LBF)
NOZZLE FRICTION DRAG	47.53	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1262.	(LBF)
NOZZLE PRESSURE INTEGRAL	1309.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-1200.	(LBF)
TOTAL STRUT DRAG	-5.72	(LBF)
CAVITY FORCE	-1293.	(LBF)
CALCULATED LOAD CELL FORCE	-1103.	(LBF)
MEASURED LOAD CELL FORCE	-1175.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, 0.0, -157.5, -116.8,	

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9801	
ADDITIVE DRAG COEFFICIENT	0.0010	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1656	
DELTA PT2	0.1174	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4270	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1679	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9033	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9062	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9368	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8834	
ENTHALPY AT P0 - SUPERSONIC	-4.00	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	34.30	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0245	
EQUIVALENCE RATIO	0.833	
COMBUSTOR EFFICIENCY	0.983	
TOTAL PRESSURE RATIO	0.1301	
COMBUSTOR EFFECTIVENESS	0.8452	
INJECTOR DISCHARGE COEFFICIENTS	0.8458, 0.7326, 0.8116, 0.7073	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9492	
NOZZLE COEFFICIENT - CT	0.8667	
PROCESS EFFICIENCY	0.8793	
KINETIC ENERGY EFFICIENCY	0.8859	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3069	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.191	(IN)
NOZZLE SHROUD TRAILING EDGE	73.531	(IN)
NOZZLE PLUG TRAILING EDGE	87.285	(IN)
STRUT LEADING EDGE	56.447	(IN)
STRUT TRAILING EDGE	65.047	(IN)
COMBUSTOR EXIT	65.047	(IN)

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.292	B
1C	44.300	
2A	48.767	D
2C	46.250	E
3A	54.057	
3B	56.242	
4	44.792	

Reading 65

t = 201.83 sec.

3-3-75

READING = 0065 - BLOCK = 102 TIME = 201.833 MACH 6.0 PT = 746.499 TT = 3022.4 PAGE 1

RAMJET PERFORMANCE

274

SUMMARY REPORT

	P	T	M	GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	M	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	746.499	3022	677.7(803)	1.2930	28.852	2595											
0.000	0.395	412	-30.2(99)	1.3988	28.851	996	5.975	5952	1.830	0.10674	26.883	0.9833	5073	9.673	188.7		
SPIKE TIP NS		2	0 5														
0.600	18.037	3022	677.7(803)	1.2929	28.851	2595											
0.600	16.243	2951	656.1(782)	1.2951	28.851	2566	0.405	1039	2.087	0.10674	26.883	0.9833	4959	1.723	184.5		
WIND TUNNEL		3	0 0														
0.000	746.499	3022	677.7(803)	1.2930	28.852	2595											
0.000	0.380	407	-31.3(98)	1.3988	28.851	996	6.014	5956	1.830	0.10380	26.142	0.9833	4935	9.606	188.8		
SPIKE TIP NS		4	0 0														
0.600	18.037	3022	677.7(803)	1.2929	28.851	2595											
0.600	16.354	2956	657.5(783)	1.2950	28.851	2568	0.391	1005	2.087	0.10380	26.142	0.9833	4935	1.621	188.8		
INLET THROAT		5	0 3														
40.400	316.074	2955	657.3(783)	1.2951	28.851	2568											
40.400	15.057	1402	216.9(346)	1.3545	28.851	1809	2.595	4695	1.883	0.94100	26.883	0.1115	4353	68.653	161.9		
INLET UPNRSK		6	0 3														
40.400	316.074	2955	657.3(783)	1.2951	28.851	2568											
40.400	12.948	1348	202.6(332)	1.3578	28.851	1776	2.666	4770	1.883	0.85546	26.883	0.1227	4393	63.416	163.4		
INLET DNNRSK		7	0 4														
40.400	124.541	2955	657.3(783)	1.2951	28.851	2568											
40.400	107.367	2857	627.6(754)	1.2982	28.851	2528	0.482	1219	1.947	0.85546	26.883	0.1227	4393	16.207	163.4		
COMBUSTOR	0	8	1 21														
40.410	268.717	2917	659.8(806)	1.2974	27.594	2611											
40.410	15.187	1441	223.6(372)	1.3534	27.593	1875	2.492	4672	1.963	0.94425	26.979	0.1116	4352	68.564	161.5	0.12	0.07
COMBUSTOR	0	9	2 21														
41.292	206.899	2847	662.9(817)	1.3013	26.421	2640											
41.292	18.566	1577	271.1(428)	1.3477	26.420	2000	2.214	4428	2.043	0.94963	27.075	0.1113	4255	65.344	157.2	0.24	0.04
COMBUSTOR	0	10	3 21														
41.302	216.780	2804	662.9(804)	1.3032	26.376	2625											
41.302	18.605	1532	271.5(415)	1.3504	26.376	1975	2.241	4425	2.035	0.94992	27.075	0.1113	4254	65.328	157.1	0.24	0.01
COMBUSTOR	0	11	4 21														
41.367	215.586	2797	662.6(802)	1.3035	26.370	2622											
41.367	18.854	1535	274.4(416)	1.3503	26.370	1977	2.230	4407	2.035	0.94993	27.075	0.1113	4246	65.065	156.8	0.24	0.00
COMBUSTOR	0	12	5 3														
41.500	208.781	2803	662.0(803)	1.3032	26.378	2624											
41.500	20.292	1581	285.5(429)	1.3479	26.377	2004	2.166	4341	2.038	0.95103	27.075	0.1111	4230	64.153	156.2	0.24	0.01
COMBUSTOR	0	13	6 4														
42.460	174.052	2895	656.3(831)	1.2988	26.493	2656											
42.460	23.631	1787	311.0(489)	1.3372	26.493	2118	1.963	4157	2.060	0.94210	27.075	0.1122	4177	60.856	154.3	0.24	0.10
COMBUSTOR	0	14	7 5														
44.087	116.898	3657	643.0(1065)	1.2615	27.393	2894											
44.087	45.582	2989	416.6(848)	1.2848	27.401	2639	1.275	3666	2.135	0.91032	27.075	0.1161	4168	47.620	154.7	0.24	0.82
COMBUSTOR	0	15	8 3														
44.310	115.288	3701	640.9(1078)	1.2590	27.453	2905											
44.310	47.815	3070	425.6(874)	1.2813	27.463	2669	1.230	3282	2.138	0.90827	27.075	0.1164	4167	46.320	154.6	0.24	0.86
COMBUSTOR	0	16	9 4														
44.800	112.738	3770	635.3(1099)	1.2551	27.555	2922											
44.800	52.718	3216	444.2(919)	1.2750	27.566	2719	1.137	3093	2.141	0.90445	27.075	0.1169	4161	43.469	154.4	0.24	0.94
COMBUSTOR	0	17	10 2														
44.802	112.770	3769	635.3(1099)	1.2551	27.554	2921											
44.802	52.723	3215	444.1(918)	1.2751	27.565	2719	1.137	3093	2.141	0.90475	27.075	0.1168	4160	43.483	154.4	0.24	0.94
COMBUSTOR	0	18	11 6														
46.250	105.857	3299	642.0(1079)	1.2812	23.799	2972											
46.250	50.671	2869	482.2(923)	1.2956	23.801	2766	1.018	2856	2.352	0.86283	27.401	0.1240	4215	36.021	153.6	0.66	0.29

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PMI	ETAC
COMBUSTOR	0	19	12 2														
46.260	105.827	3302	642.7(1080)	1.2811	23.802	2972											
46.260	56.698	2872	482.1(924)	1.2955	23.804	2787	1.017	2835	2.352	0.86220	27.401	0.1241	4216	37.985	153.9	0.66	0.29
COMBUSTOR	0	20	13 4														
47.310	102.723	3600	628.2(1183)	1.2658	24.142	3063											
47.310	59.560	3203	475.8(1038)	1.2797	24.147	2905	0.951	2762	2.372	0.80243	27.401	0.1333	4386	34.443	160.1	0.66	0.42
COMBUSTOR	0	21	14 3														
47.327	102.564	3612	628.0(1188)	1.2651	24.155	3067											
47.327	59.674	3217	476.0(1042)	1.2790	24.160	2910	0.948	2758	2.373	0.79975	27.401	0.1338	4393	34.276	160.5	0.66	0.43
COMBUSTOR	0	22	15 4														
48.110	99.166	3894	617.8(1287)	1.2493	24.482	3143											
48.110	56.564	3473	450.1(1130)	1.2653	24.495	2987	0.970	2897	2.390	0.74776	27.401	0.1431	4540	33.664	165.7	0.66	0.55
COMBUSTOR	0	23	16 6														
48.767	93.868	3560	626.8(1292)	1.2693	21.777	3212											
48.767	45.880	3047	411.4(1084)	1.2871	21.782	2992	1.097	3283	2.580	0.69692	27.704	0.1552	4651	35.561	167.9	1.04	0.33
COMBUSTOR	0	24	17 2														
48.777	93.816	3562	626.7(1293)	1.2691	21.779	3213											
48.777	45.732	3047	410.4(1084)	1.2870	21.784	2992	1.100	3290	2.580	0.69602	27.704	0.1554	4653	35.587	168.0	1.04	0.33
COMBUSTOR	0	25	18 4														
49.307	91.830	3648	621.1(1326)	1.2645	21.871	3238											
49.307	37.867	3013	353.7(1069)	1.2868	21.879	2968	1.232	3658	2.587	0.65095	27.704	0.1662	4761	37.007	171.9	1.04	0.36
COMBUSTOR	0	26	19 4														
50.717	84.518	3948	607.9(1443)	1.2472	22.189	3322											
50.717	30.806	3205	285.4(1138)	1.2754	22.208	3025	1.328	4017	2.611	0.55478	27.704	0.1950	4997	34.629	180.4	1.04	0.48
COMBUSTOR	0	27	20 4														
52.817	78.594	4161	591.3(1526)	1.2331	22.438	3372											
52.817	22.275	3232	180.0(1144)	1.2707	22.477	3014	1.505	4537	2.626	0.45471	27.704	0.2379	5263	32.058	190.0	1.04	0.62
COMBUSTOR	0	28	21 2														
53.317	78.533	4152	587.8(1522)	1.2336	22.437	3369											
53.317	20.272	3160	151.1(1115)	1.2733	22.475	2984	1.567	4674	2.625	0.43613	27.704	0.2480	5313	31.682	191.8	1.04	0.62
COMBUSTOR	0	29	22 4														
54.067	76.791	4198	582.7(1539)	1.2303	22.495	3379											
54.067	10.585	3160	123.7(1114)	1.2725	22.539	2978	1.609	4793	2.629	0.41111	27.704	0.2631	5379	30.620	194.2	1.04	0.54
COMBUSTOR	0	30	23 3														
54.827	75.857	4214	578.0(1546)	1.2290	22.522	3381											
54.827	16.875	3119	94.2(1097)	1.2736	22.570	2958	1.663	4920	2.630	0.38876	27.704	0.2782	5439	29.727	196.3	1.04	0.55
COMBUSTOR	0	31	24 4														
55.760	74.322	4246	572.7(1558)	1.2265	22.567	3387											
55.760	15.320	3099	64.7(1087)	1.2736	22.620	2945	1.718	5042	2.633	0.36483	27.704	0.2965	5504	28.584	198.7	1.04	0.56
COMBUSTOR	0	32	25 5														
56.252	57.785	4677	570.2(1729)	1.1898	23.023	3467											
56.252	14.500	3693	72.9(1316)	1.2397	23.194	3133	1.592	4988	2.672	0.29396	27.704	0.3679	5662	22.789	204.4	1.04	0.72
COMBUSTOR	0	33	26 5														
56.307	68.780	4258	569.9(1563)	1.2249	22.587	3388											
56.307	10.954	2944	=8.0(1025)	1.2788	22.644	2875	1.870	5378	2.640	0.29319	27.704	0.3689	5666	24.502	204.5	1.04	0.57
COMBUSTOR	0	34	27 3														
56.447	68.656	4263	569.3(1565)	1.2245	22.593	3389											
56.447	10.837	2943	=11.5(1025)	1.2787	22.651	2874	1.876	5391	2.640	0.29103	27.704	0.3717	5674	24.382	204.8	1.04	0.57
COMBUSTOR	0	35	28 21														
56.527	50.683	5127	568.9(1909)	1.1499	23.490	3533											
56.527	14.042	4395	57.3(1590)	1.1696	23.978	3265	1.550	5060	2.688	0.29434	27.704	0.3675	5678	23.145	205.0	1.04	1.00
COMBUSTOR	0	36	29 21														
56.807	50.609	5126	567.6(1908)	1.1500	23.492	3532											
56.807	13.575	4373	43.0(1580)	1.1707	23.990	3257	1.573	5124	2.688	0.29347	27.704	0.3686	5693	23.368	205.5	1.04	1.00
COMBUSTOR	0	37	30 21														
57.033	50.678	5125	566.6(1908)	1.1500	23.493	3532											
57.033	12.951	4345	26.1(1569)	1.1721	24.004	3248	1.601	5201	2.688	0.29276	27.704	0.3695	5704	23.662	205.9	1.04	1.00

READING = 0065 BLOCK = 102 TIME = 201.833 MACH 0.0 PT = 746.494 TT = 3022.4

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	V/A	A	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	38	51 21														
57.757	49.223	5118	563.5(1905)	1.1498	23.494	3529											
57.757	10.950	4258	-25.7(1532)	1.1764	24.042	3219	1.687	5429	2.690	0.28822	27.704	0.3755	5728	24.319	206.7	1.04	1.00
COMBUSTOR	0	39	32 21														
58.777	38.652	5083	559.8(1891)	1.1479	23.465	3516											
58.777	5.775	4007	-162.2(1426)	1.1895	24.122	3134	1.918	6011	2.709	0.28639	27.704	0.3777	5734	26.752	207.0	1.04	1.00
COMBUSTOR	0	40	33 21														
60.787	53.235	5118	553.6(1904)	1.1509	23.518	3529											
60.787	16.462	4444	84.0(1611)	1.1686	23.963	3262	1.477	4848	2.681	0.29635	27.704	0.3650	5713	22.525	206.2	1.04	1.00
COMBUSTOR	0	41	34 21														
62.207	54.123	5115	549.0(1903)	1.1512	23.526	3528											
62.207	16.406	4427	72.6(1604)	1.1697	23.974	3277	1.490	4883	2.679	0.30439	27.704	0.3553	5697	23.097	205.7	1.04	1.00
COMBUSTOR	0	42	35 200														
64.671	51.107	5098	539.5(1896)	1.1510	23.531	3521											
64.671	19.121	4535	142.9(1650)	1.1647	23.913	3314	1.344	4455	2.682	0.28852	27.704	0.3749	5672	19.474	204.7	1.04	1.00
COMBUSTOR	0	43	36 200														
65.047	47.330	5087	537.8(1891)	1.1504	23.523	3517											
65.047	20.099	4600	189.9(1678)	1.1614	23.865	3336	1.251	4172	2.688	0.26823	27.704	0.4032	5668	17.391	204.6	1.04	1.00
COMBUSTOR REGEN	44	57	3														
65.047	47.330	5188	639.2(1937)	1.1471	23.383	3557											
65.047	18.252	4658	244.0(1704)	1.1565	23.791	3358	1.325	4447	2.708	0.26823	27.704	0.4032	5714	18.536	206.3	1.04	1.00
NOZZLE AE		45	38 5														
87.283	47.330	5087	537.8(1834)	1.1504	23.523	3517											
87.283	1.341	2905	-650.9(981)	1.2653	24.235	2746	2.808	7712	2.688	0.05584	27.704	1.9371	7306	6.692	263.7	1.04	1.00
NOZZLE PO		46	39 5														
87.283	47.330	5087	537.8(1834)	1.1504	23.523	3517											
87.283	0.395	2231	-907.0(725)	1.2862	24.236	2426	3.504	8503	2.688	0.02363	27.704	4.5778	7785	3.122	281.0	1.04	1.00
NOZZLE AE REGEN	47	40	5														
87.283	47.330	5188	639.2(1937)	1.1471	23.383	3557											
87.283	1.406	3084	-580.3(1051)	1.2593	24.234	2823	2.768	7812	2.708	0.05584	27.704	1.9371	7424	6.779	268.0	1.04	1.00
NOZZLE PO REGEN	48	41	5														
87.283	47.330	5188	639.2(1937)	1.1471	23.383	3557											
87.283	0.395	2353	-861.7(770)	1.2819	24.236	2488	3.484	8666	2.708	0.02283	27.704	4.7368	7942	3.075	286.7	1.04	1.00
FICTIVE COMBUSTR	68	61	0														
65.047	316.074	5307	537.8(1981)	1.1677	23.759	3601											
65.047	0.395	1415	-1194.1(438)	1.3267	24.236	1962	4.744	9309	2.528	0.04080	27.704	2.6508	8284	5.903	299.0	1.04	1.00
FICTIVE NOZZLE	69	62	0														
87.283	31.448	5006	508.2(1857)	1.1480	23.509	3486											
87.283	1.612	3242	-516.4(1114)	1.2523	24.231	2886	2.481	7160	2.717	0.05584	27.704	1.9371	6965	6.213	251.4	1.04	1.00

XABS	P-IB	P-OB	PDA	QOX	U-IB	Q-OB	CANALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PIO
6.981E-01	1.065E 00	0.000	-4.397E-01	0.000	0.000	0.000	2.470E-02	2.694E 00	1.427E-03	0.000	0.000
1.836E 01	1.065E 00	0.000	-3.545E 01	0.000	0.000	0.000	1.634E 02	2.694E 00	1.427E-03	0.000	0.000
3.070E 01	2.200E 00	0.000	-1.678E 02	0.000	0.000	0.000	5.053E 02	5.564E 00	2.947E-03	0.000	0.000
3.508E 01	3.902E 00	0.000	-3.655E 02	0.000	0.000	0.000	6.804E 02	9.869E 00	5.227E-03	0.000	0.000
3.518E 01	3.926E 00	5.825E 00	-4.318E 02	0.000	0.000	0.000	6.850E 02	9.930E 00	5.259E-03	1.473E 01	7.803E-03
3.519E 01	3.927E 00	5.796E 00	-4.318E 02	0.000	0.000	0.000	6.853E 02	9.933E 00	5.261E-03	1.466E 01	7.764E-03
3.555E 01	4.010E 00	4.073E 00	-4.389E 02	0.000	0.000	0.000	7.213E 02	1.014E 01	5.372E-03	1.030E 01	5.456E-03
3.586E 01	3.974E 00	2.600E 00	-4.519E 02	-3.615E 02	-3.615E 02	0.000	7.525E 02	1.005E 01	5.323E-03	6.576E 00	3.483E-03
3.606E 01	3.950E 00	3.351E 00	-4.617E 02	-3.657E 02	-3.657E 02	0.000	7.733E 02	9.991E 00	5.291E-03	8.476E 00	4.489E-03
3.648E 01	4.207E 00	4.905E 00	-4.792E 02	-3.747E 02	-3.747E 02	0.000	8.169E 02	1.064E 01	5.635E-03	1.241E 01	6.570E-03
3.701E 01	4.235E 00	6.865E 00	-5.022E 02	-3.970E 02	-3.865E 02	-1.051E 01	8.730E 02	1.071E 01	5.673E-03	1.736E 01	9.196E-03
3.732E 01	4.118E 00	8.000E 00	-5.131E 02	-4.075E 02	-3.936E 02	-1.392E 01	9.059E 02	1.041E 01	5.516E-03	2.023E 01	1.072E-02
3.803E 01	3.845E 00	1.338E 01	-5.268E 02	-4.326E 02	-4.110E 02	-2.157E 01	9.838E 02	9.725E 00	5.151E-03	3.385E 01	1.793E-02
3.834E 01	5.512E 00	1.570E 01	-5.255E 02	-4.440E 02	-4.192E 02	-2.480E 01	1.018E 03	1.394E 01	7.384E-03	3.971E 01	2.103E-02
3.875E 01	7.757E 00	1.541E 01	-5.276E 02	-4.608E 02	-4.317E 02	-2.910E 01	1.065E 03	1.962E 01	1.039E-02	3.899E 01	2.065E-02
3.881E 01	8.066E 00	1.537E 01	-5.280E 02	-4.633E 02	-4.336E 02	-2.969E 01	1.071E 03	2.040E 01	1.081E-02	3.889E 01	2.060E-02
3.901E 01	9.170E 00	1.567E 01	-5.287E 02	-4.723E 02	-4.405E 02	-3.178E 01	1.094E 03	2.319E 01	1.228E-02	3.963E 01	2.099E-02
3.932E 01	1.418E 01	1.611E 01	-5.352E 02	-4.867E 02	-4.518E 02	-3.490E 01	1.130E 03	3.587E 01	1.900E-02	4.075E 01	2.158E-02
3.950E 01	1.717E 01	1.370E 01	-5.436E 02	-4.958E 02	-4.591E 02	-3.674E 01	1.151E 03	4.344E 01	2.301E-02	3.464E 01	1.835E-02
3.981E 01	1.747E 01	9.650E 00	-5.624E 02	-5.119E 02	-4.722E 02	-3.975E 01	1.187E 03	4.419E 01	2.340E-02	2.441E 01	1.293E-02
4.000E 01	1.766E 01	9.575E 00	-5.751E 02	-5.227E 02	-4.811E 02	-4.161E 01	1.209E 03	4.466E 01	2.365E-02	2.422E 01	1.283E-02
4.040E 01	2.088E 01	9.419E 00	-6.033E 02	-5.468E 02	-5.007E 02	-4.609E 01	1.256E 03	5.281E 01	2.797E-02	2.382E 01	1.262E-02
4.041E 01	2.096E 01	9.415E 00	-6.039E 02	-5.474E 02	-5.012E 02	-4.622E 01	1.257E 03	5.301E 01	2.808E-02	2.381E 01	1.261E-02
4.129E 01	2.806E 01	9.071E 00	-6.828E 02	-6.276E 02	-5.494E 02	-7.821E 01	1.362E 03	7.097E 01	3.759E-02	2.294E 01	1.215E-02
4.130E 01	2.814E 01	9.068E 00	-6.838E 02	-6.288E 02	-5.500E 02	-7.881E 01	1.363E 03	7.118E 01	3.770E-02	2.293E 01	1.215E-02
4.137E 01	2.867E 01	9.042E 00	-6.905E 02	-6.366E 02	-5.538E 02	-8.280E 01	1.371E 03	7.250E 01	3.840E-02	2.287E 01	1.211E-02
4.150E 01	2.974E 01	1.085E 01	-7.040E 02	-6.554E 02	-5.618E 02	-9.160E 01	1.386E 03	7.521E 01	3.984E-02	2.744E 01	1.453E-02
4.246E 01	2.340E 01	2.386E 01	-7.403E 02	-8.076E 02	-6.319E 02	-1.757E 02	1.501E 03	5.919E 01	3.135E-02	6.035E 01	3.196E-02
4.409E 01	4.525E 01	4.592E 01	-7.022E 02	-1.167E 03	-8.222E 02	-3.448E 02	1.698E 03	1.144E 02	6.061E-02	1.161E 02	6.151E-02
4.431E 01	4.824E 01	4.738E 01	-7.001E 02	-1.226E 03	-8.563E 02	-3.695E 02	1.725E 03	1.220E 02	6.463E-02	1.198E 02	6.348E-02
4.480E 01	5.482E 01	5.061E 01	-6.983E 02	-1.376E 03	-9.378E 02	-4.381E 02	1.785E 03	1.387E 02	7.344E-02	1.280E 02	6.780E-02
4.480E 01	5.482E 01	5.062E 01	-6.986E 02	-1.376E 03	-9.381E 02	-4.384E 02	1.785E 03	1.387E 02	7.344E-02	1.280E 02	6.781E-02
4.625E 01	5.318E 01	6.016E 01	-5.895E 02	-1.897E 03	-1.182E 03	-7.154E 02	1.963E 03	1.345E 02	7.124E-02	1.522E 02	8.059E-02
4.626E 01	5.317E 01	6.023E 01	-5.877E 02	-1.901E 03	-1.183E 03	-7.176E 02	1.964E 03	1.345E 02	7.123E-02	1.523E 02	8.066E-02
4.731E 01	5.198E 01	6.714E 01	-4.039E 02	-2.299E 03	-1.347E 03	-9.514E 02	2.095E 03	1.315E 02	6.963E-02	1.698E 02	8.994E-02
4.733E 01	5.210E 01	6.725E 01	-3.966E 02	-2.305E 03	-1.350E 03	-9.551E 02	2.097E 03	1.318E 02	6.979E-02	1.701E 02	9.009E-02
4.811E 01	5.750E 01	5.563E 01	-2.398E 02	-2.584E 03	-1.465E 03	-1.119E 03	2.194E 03	1.454E 02	7.703E-02	1.407E 02	7.452E-02
4.877E 01	4.588E 01	4.588E 01	-8.359E 01	-2.795E 03	-1.558E 03	-1.238E 03	2.277E 03	1.160E 02	6.146E-02	1.160E 02	6.146E-02
4.878E 01	4.573E 01	4.573E 01	-8.120E 01	-2.798E 03	-1.559E 03	-1.239E 03	2.278E 03	1.157E 02	6.126E-02	1.157E 02	6.126E-02
4.931E 01	3.787E 01	3.787E 01	3.488E 01	-2.995E 03	-1.630E 03	-1.323E 03	2.344E 03	9.578E 01	5.073E-02	9.578E 01	5.073E-02
5.072E 01	3.081E 01	3.081E 01	2.881E 02	-3.322E 03	-1.807E 03	-1.515E 03	2.522E 03	7.792E 01	4.127E-02	7.792E 01	4.127E-02
5.282E 01	2.227E 01	2.227E 01	5.804E 02	-3.781E 03	-2.032E 03	-1.749E 03	2.786E 03	5.634E 01	2.984E-02	5.634E 01	2.984E-02
5.332E 01	2.027E 01	2.027E 01	6.357E 02	-3.877E 03	-2.080E 03	-1.798E 03	2.852E 03	5.127E 01	2.716E-02	5.127E 01	2.716E-02
5.407E 01	1.858E 01	1.858E 01	7.108E 02	-4.017E 03	-2.146E 03	-1.870E 03	2.948E 03	4.701E 01	2.490E-02	4.701E 01	2.490E-02
5.483E 01	1.687E 01	1.687E 01	7.796E 02	-4.148E 03	-2.208E 03	-1.940E 03	3.045E 03	4.268E 01	2.261E-02	4.268E 01	2.261E-02
5.576E 01	1.532E 01	1.532E 01	8.549E 02	-4.295E 03	-2.277E 03	-2.019E 03	3.165E 03	3.875E 01	2.052E-02	3.875E 01	2.052E-02
5.625E 01	1.450E 01	1.450E 01	1.016E 03	-4.365E 03	-2.307E 03	-2.058E 03	3.209E 03	3.667E 01	1.942E-02	3.667E 01	1.942E-02
5.631E 01	7.500E 00	1.441E 01	1.020E 03	-4.372E 03	-2.310E 03	-2.062E 03	3.216E 03	1.897E 01	1.005E-02	3.644E 01	1.930E-02
5.645E 01	7.500E 00	1.417E 01	1.029E 03	-4.390E 03	-2.317E 03	-2.073E 03	3.234E 03	1.897E 01	1.005E-02	3.585E 01	1.899E-02
5.653E 01	1.404E 01	1.404E 01	1.035E 03	-4.400E 03	-2.321E 03	-2.079E 03	3.245E 03	3.552E 01	1.881E-02	3.552E 01	1.881E-02
5.681E 01	1.357E 01	1.357E 01	1.053E 03	-4.436E 03	-2.335E 03	-2.101E 03	3.280E 03	3.433E 01	1.818E-02	3.433E 01	1.818E-02
5.703E 01	1.295E 01	1.295E 01	1.066E 03	-4.464E 03	-2.346E 03	-2.118E 03	3.309E 03	3.276E 01	1.735E-02	3.276E 01	1.735E-02
5.776E 01	1.095E 01	1.095E 01	1.098E 03	-4.551E 03	-2.376E 03	-2.174E 03	3.402E 03	2.770E 01	1.467E-02	2.770E 01	1.467E-02
5.878E 01	5.775E 00	5.775E 00	1.117E 03	-4.651E 03	-2.411E 03	-2.240E 03	3.532E 03	1.461E 01	7.736E-03	1.461E 01	7.736E-03
6.079E 01	1.646E 01	1.646E 01	1.120E 03	-4.823E 03	-2.458E 03	-2.365E 03	3.790E 03	4.164E 01	2.205E-02	4.164E 01	2.205E-02
6.221E 01	1.641E 01	1.641E 01	1.120E 03	-4.952E 03	-2.491E 03	-2.461E 03	3.972E 03	4.150E 01	2.198E-02	4.150E 01	2.198E-02

READING = 0065 BLOCK = 102 TIME = 201.833 MACH 6.0 PI = 746.499 TI = 5022.4 PAGE 5

XABS	P-IB	P-OB	PDA	GUX	W-IB	Q-UB	CAXIALL	P-IB/PS0	P-IB/P10	P-OB/PS0	P-OB/P10
6.467E 01	1.912E 01	1.912E 01	1.120E 03	-5.210E 03	-2.582E 03	-2.634E 03	4.269E 03	4.636E 01	2.561E-02	4.636E 01	2.561E-02
6.505E 01	2.066E 01	1.954E 01	1.120E 03	-5.265E 03	-2.600E 03	-2.665E 03	4.557E 03	5.226E 01	2.708E-02	4.941E 01	2.617E-02
6.509E 01	2.066E 01	1.956E 01	1.120E 03	-5.268E 03	-2.602E 03	-2.666E 03	4.542E 03	5.226E 01	2.768E-02	4.952E 01	2.623E-02
6.529E 01	1.964E 01	1.980E 01	1.120E 03	-5.293E 03	-2.611E 03	-2.681E 03	4.368E 03	4.968E 01	2.631E-02	5.008E 01	2.652E-02
6.695E 01	1.116E 01	9.740E 00	1.287E 03	-5.472E 03	-2.677E 03	-2.795E 03	4.583E 03	2.823E 01	1.495E-02	2.464E 01	1.305E-02
6.762E 01	7.817E 00	9.367E 00	1.480E 03	-5.555E 03	-2.697E 03	-2.837E 03	4.665E 03	1.977E 01	1.047E-02	2.369E 01	1.255E-02
6.839E 01	3.975E 00	7.123E 00	1.672E 03	-5.604E 03	-2.715E 03	-2.890E 03	4.760E 03	1.005E 01	5.325E-03	1.802E 01	9.542E-03
6.911E 01	3.447E 00	5.025E 00	1.796E 03	-5.676E 03	-2.728E 03	-2.948E 03	4.848E 03	8.719E 00	4.618E-03	1.271E 01	6.731E-03
6.972E 01	3.000E 00	4.137E 00	1.879E 03	-5.734E 03	-2.737E 03	-2.997E 03	4.922E 03	7.588E 00	4.019E-03	1.046E 01	5.542E-03
7.067E 01	2.177E 00	2.755E 00	1.974E 03	-5.804E 03	-2.747E 03	-3.057E 03	5.036E 03	5.507E 00	2.917E-03	6.968E 00	3.691E-03
7.110E 01	1.805E 00	2.565E 00	2.007E 03	-5.826E 03	-2.751E 03	-3.078E 03	5.088E 03	4.565E 00	2.418E-03	6.488E 00	3.436E-03
7.263E 01	1.486E 00	1.890E 00	2.098E 03	-5.898E 03	-2.761E 03	-3.137E 03	5.273E 03	3.759E 00	1.991E-03	4.780E 00	2.532E-03
7.278E 01	1.455E 00	1.807E 00	2.105E 03	-5.904E 03	-2.762E 03	-3.142E 03	5.290E 03	3.680E 00	1.949E-03	4.570E 00	2.420E-03
7.353E 01	1.437E 00	1.390E 00	2.158E 03	-5.957E 03	-2.767E 03	-3.169E 03	5.374E 03	3.634E 00	1.925E-03	3.516E 00	1.862E-03
7.353E 01	1.437E 00	1.388E 00	2.160E 03	-5.957E 03	-2.767E 03	-3.169E 03	5.375E 03	3.634E 00	1.925E-03	3.510E 00	1.859E-03
7.486E 01	1.405E 00	0.000	2.190E 03	-6.001E 03	-2.775E 03	-3.226E 03	5.427E 03	3.554E 00	1.882E-03	0.000	0.000
7.771E 01	2.725E 00	0.000	2.273E 03	-6.017E 03	-2.791E 03	-3.226E 03	5.525E 03	6.892E 00	3.650E-03	0.000	0.000
8.161E 01	1.900E 00	0.000	2.372E 03	-6.036E 03	-2.810E 03	-3.226E 03	5.630E 03	4.806E 00	2.545E-03	0.000	0.000
8.442E 01	1.530E 00	0.000	2.410E 03	-6.053E 03	-2.827E 03	-3.226E 03	5.684E 03	3.870E 00	2.050E-03	0.000	0.000
8.728E 01	3.410E 00	0.000	2.469E 03	-6.082E 03	-2.856E 03	-3.226E 03	5.707E 03	8.625E 00	4.568E-03	0.000	0.000
8.728E 01	3.414E 00	0.000	2.469E 03	-6.082E 03	-2.856E 03	-3.226E 03	5.707E 03	8.635E 00	4.573E-03	0.000	0.000

READING = 0065 BLOCK = 102 TIME = 201.853 MACH 6.0 P1 = 746.499 T1 = 3022.4

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.199E 02	1.199E 02	2.168E-03	4.249E-02
4.041E 01	1.877E-01	1.201E 02	2.466E-03	4.151E-02
4.129E 01	1.768E 01	1.377E 02	2.597E-03	4.729E-02
4.130E 01	1.903E-01	1.379E 02	2.380E-03	5.051E-02
4.137E 01	1.194E 00	1.391E 02	2.352E-03	5.110E-02
4.150E 01	2.421E 00	1.415E 02	2.366E-03	5.364E-02
4.246E 01	1.714E 01	1.587E 02	2.409E-03	5.805E-02
4.409E 01	2.676E 01	1.854E 02	2.602E-03	7.941E-02
4.431E 01	3.555E 00	1.890E 02	2.984E-03	7.022E-02
4.480E 01	8.047E 00	1.970E 02	3.009E-03	7.148E-02
4.480E 01	3.264E-02	1.971E 02	3.009E-03	7.148E-02
4.625E 01	2.296E 01	2.200E 02	3.324E-03	6.796E-02
4.626E 01	1.494E-01	2.202E 02	2.980E-03	7.689E-02
4.731E 01	1.396E 01	2.341E 02	2.943E-03	7.794E-02
4.733E 01	2.202E-01	2.344E 02	3.073E-03	7.424E-02
4.811E 01	1.010E 01	2.445E 02	3.025E-03	7.374E-02
4.877E 01	8.967E 00	2.534E 02	3.278E-03	6.469E-02
4.878E 01	1.404E-01	2.536E 02	3.021E-03	7.065E-02
4.931E 01	7.203E 00	2.608E 02	2.950E-03	6.593E-02
5.072E 01	1.854E 01	2.793E 02	2.881E-03	5.856E-02
5.282E 01	2.559E 01	3.049E 02	2.884E-03	4.668E-02
5.332E 01	5.937E 00	3.108E 02	2.963E-03	4.266E-02
5.407E 01	8.793E 00	3.196E 02	2.929E-03	4.034E-02
5.483E 01	8.595E 00	3.282E 02	2.922E-03	3.760E-02
5.576E 01	1.018E 01	3.384E 02	2.900E-03	3.510E-02
5.625E 01	3.292E 00	3.417E 02	2.869E-03	3.187E-02
5.631E 01	4.933E-01	3.422E 02	3.053E-03	2.540E-02
5.645E 01	1.277E 00	3.435E 02	2.828E-03	2.673E-02
5.653E 01	7.479E-01	3.442E 02	3.321E-03	2.795E-02
5.681E 01	2.752E 00	3.470E 02	3.313E-03	2.743E-02
5.703E 01	2.245E 00	3.492E 02	3.309E-03	2.668E-02
5.776E 01	7.353E 00	3.566E 02	3.308E-03	2.399E-02
5.878E 01	1.122E 01	3.678E 02	3.413E-03	1.529E-02
6.079E 01	2.116E 01	3.890E 02	3.275E-03	3.057E-02
6.221E 01	1.353E 01	4.025E 02	3.264E-03	3.069E-02
6.467E 01	2.231E 01	4.248E 02	3.291E-03	3.220E-02
6.505E 01	2.986E 00	4.278E 02	3.336E-03	3.170E-02
6.509E 01	3.089E-01	4.281E 02	3.416E-03	3.253E-02
6.529E 01	1.603E 00	4.297E 02	3.414E-03	3.228E-02
6.695E 01	1.313E 01	4.428E 02	3.354E-03	2.369E-02
6.762E 01	4.682E 00	4.475E 02	3.336E-03	2.072E-02
6.839E 01	4.815E 00	4.523E 02	3.283E-03	1.546E-02
6.911E 01	3.798E 00	4.561E 02	3.239E-03	1.275E-02
6.972E 01	2.851E 00	4.590E 02	3.214E-03	1.125E-02
7.067E 01	3.808E 00	4.628E 02	3.161E-03	8.561E-03
7.110E 01	1.499E 00	4.643E 02	3.143E-03	7.817E-03
7.263E 01	4.748E 00	4.690E 02	3.105E-03	6.419E-03
7.278E 01	4.052E-01	4.694E 02	3.100E-03	6.251E-03
7.353E 01	1.881E 00	4.713E 02	3.078E-03	5.590E-03
7.353E 01	3.441E-03	4.713E 02	3.078E-03	5.592E-03
7.486E 01	1.099E 00	4.724E 02	3.070E-03	5.556E-03
7.771E 01	2.567E 00	4.750E 02	3.139E-03	4.109E-03
8.161E 01	2.956E 00	4.779E 02	3.069E-03	6.902E-03
8.442E 01	1.282E 00	4.792E 02	3.029E-03	5.826E-03
8.728E 01	6.426E-01	4.799E 02	3.125E-03	1.058E-02
8.728E 01	0.000	4.799E 02	3.125E-03	1.059E-02

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1889.	(LBF)
MEASURED THRUST	1685.	(LBF)
CALCULATED SPECIFIC IMPULSE	2302.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2053.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.7472	
MEASURED THRUST COEFFICIENT	0.6664	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	7077.	(LBF)
NET THRUST	2002.	(LBF)
SPECIFIC IMPULSE	2439.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.7915	

MOMENTUM AND FORCES

INLET FRICTION DRAG	119.9	(LBF)
INLET MOMENTUM CHANGE	-723.1	(LBF)
COMBUSTOR FRICTION DRAG	307.9	(LBF)
COMBUSTOR STRUT DRAG	11.97	(LBF)
COMBUSTOR MOMENTUM CHANGE	1315.	(LBF)
NOZZLE FRICTION DRAG	52.08	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1297.	(LBF)
NOZZLE PRESSURE INTEGRAL	1349.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-1575.	(LBF)
TOTAL STRUT DRAG	11.97	(LBF)
CAVITY FORCE	-1319.	(LBF)
CALCULATED LOAD CELL FORCE	-1005.	(LBF)
MEASURED LOAD CELL FORCE	-1209.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0,	0.0, 0.0, -158.3, -119.6,	

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9833	
ADDITIVE DRAG COEFFICIENT	0.0007	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1645	
DELTA PT2	0.1169	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4234	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1668	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9026	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9063	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9373	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.6842	
ENTHALPY AT P0 - SUPERSONIC	-6.14	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	31.42	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0305	
EQUIVALENCE RATIO	1.040	
COMBUSTOR EFFICIENCY	1.000	
TOTAL PRESSURE RATIO	0.1497	
COMBUSTOR EFFECTIVENESS	0.8730	

INJECTOR DISCHARGE COEFFICIENTS 0.8488, 0.7147, 0.8040, 0.7092

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9534	
NOZZLE COEFFICIENT - CT	0.8695	
PROCESS EFFICIENCY	0.8872	
KINETIC ENERGY EFFICIENCY	0.8956	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.5069	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.191	(IN)
NOZZLE SHROUD TRAILING EDGE	73.531	(IN)
NOZZLE PLUG TRAILING EDGE	87.285	(IN)
STRUT LEADING EDGE	56.447	(IN)
STRUT TRAILING EDGE	65.047	(IN)
COMBUSTOR EXIT	65.047	(IN)

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.292	B
1C	44.300	
2A	48.767	D
2C	46.250	E
3A	54.057	
3B	56.242	
4	60.792	

Reading 65

t = 218.03 sec.

3-3-75

READING = 0005 BLOCK = 120 TIME = 218.033 MACH 6.0 PI = 745.999 TT = 3054.4 PAGE 1

RAMJET PERFORMANCE

SUMMARY REPORT

282

P	T	H	GAMFA	MOLWT	SONV	MACH	VEL	S	A/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL 1		0 5														
0.000 745.999	3054	687.4(813)	1.2920	28.852	2608											
0.000 0.401	419	=28.5(101)	1.3969	28.851	1005	5.957	5985	1.834	0.10693	26.857	0.9806	5097	9.946	189.6		
SPIKE TIP NS 2		0 3														
0.600 18.012	3054	687.4(813)	1.2918	28.851	2608											
0.600 16.186	2981	665.2(791)	1.2941	28.851	2578	0.409	1055	2.090	0.10693	26.857	0.9806	4946	1.753	184.1		
WIND TUNNEL 3		0 0														
0.000 745.999	3054	687.4(813)	1.2920	28.852	2608											
0.000 0.380	412	=30.0(99)	1.3988	28.851	997	6.009	5992	1.834	0.10303	25.877	0.9806	4914	9.593	189.9		
SPIKE TIP NS 4		0 0														
0.600 18.012	3054	687.4(813)	1.2918	28.851	2608											
0.600 16.335	2987	667.1(793)	1.2940	28.851	2581	0.391	1009	2.090	0.10303	25.877	0.9806	4914	1.616	189.9		
INLET THROAT 5		0 2														
40.400 318.819	2991	668.1(794)	1.2940	28.851	2582											
40.400 15.134	1421	221.6(351)	1.3534	28.851	1820	2.597	4726	1.886	0.94010	26.857	0.1115	4378	69.053	163.0		
INLET UPNRSK 6		0 3														
40.400 318.819	2991	668.1(794)	1.2940	28.851	2582											
40.400 13.016	1365	207.2(337)	1.3567	28.851	1787	2.688	4802	1.886	0.85464	26.857	0.1227	4418	63.784	164.5		
INLET DNNRSK 7		0 4														
40.400 125.283	2991	668.1(794)	1.2940	28.851	2582											
40.400 108.041	2891	638.1(765)	1.2971	28.851	2542	0.482	1225	1.950	0.85464	26.857	0.1227	4418	16.271	164.5		
COMBUSTOR 0 8		1 21														
40.410 265.692	2945	670.9(819)	1.2967	27.428	2631											
40.410 15.167	1461	228.5(380)	1.3525	27.427	1892	2.486	4705	1.977	0.94382	26.967	0.1116	4377	69.012	162.3	0.14	0.07
COMBUSTOR 0 9		2 21														
41.292 203.735	2867	673.9(830)	1.3009	26.192	2661											
41.292 18.867	1601	279.6(439)	1.3467	26.192	2023	2.195	4442	2.060	0.94941	27.069	0.1113	4275	65.835	157.9	0.27	0.04
COMBUSTOR 0 10		3 21														
41.302 213.864	2821	673.8(816)	1.3030	26.146	2644											
41.302 18.909	1553	280.0(425)	1.3496	26.145	1997	2.223	4439	2.052	0.94971	27.069	0.1113	4274	65.515	157.9	0.27	0.01
COMBUSTOR 0 11		4 21														
41.367 212.673	2814	673.5(814)	1.3034	26.139	2641											
41.367 19.181	1557	283.1(426)	1.3495	26.139	1999	2.211	4420	2.051	0.94972	27.069	0.1113	4265	65.233	157.6	0.27	0.00
COMBUSTOR 0 12		5 3														
41.500 204.757	2824	672.8(817)	1.3028	26.152	2645											
41.500 20.873	1614	295.8(443)	1.3465	26.152	2032	2.157	4343	2.055	0.95082	27.069	0.1111	4248	64.179	156.9	0.27	0.01
COMBUSTOR 0 13		6 4														
42.460 147.854	3104	666.8(903)	1.2897	26.467	2742											
42.460 29.559	2128	353.5(594)	1.3224	26.468	2299	1.722	3959	2.103	0.94189	27.069	0.1122	4180	57.947	154.4	0.27	0.25
COMBUSTOR 0 14		7 5														
44.087 113.469	3734	653.4(1098)	1.2578	27.226	2929											
44.087 55.102	3162	462.0(917)	1.2776	27.236	2724	1.136	3094	2.157	0.91012	27.069	0.1161	4183	45.763	154.5	0.27	0.80
COMBUSTOR 0 15		8 3														
44.310 112.813	3752	651.3(1103)	1.2568	27.255	2933											
44.310 54.741	3224	467.6(930)	1.2757	27.265	2739	1.107	3031	2.158	0.90806	27.069	0.1164	4182	42.777	154.5	0.27	0.82
COMBUSTOR 0 16		9 3														
44.800 111.672	3770	646.0(1109)	1.2556	27.294	2936											
44.800 58.342	3293	479.3(952)	1.2729	27.304	2762	1.046	2888	2.159	0.90424	27.069	0.1169	4176	40.587	154.3	0.27	0.85
COMBUSTOR 0 17		10 2														
44.802 111.697	3769	646.0(1108)	1.2556	27.293	2936											
44.802 58.340	3292	479.2(951)	1.2729	27.303	2762	1.046	2888	2.159	0.90455	27.069	0.1168	4176	40.604	154.3	0.27	0.85
COMBUSTOR 0 18		11 6														
46.250 105.653	3278	653.2(1075)	1.2826	23.682	2971											
46.250 56.968	2853	494.5(921)	1.2968	23.683	2787	1.011	2818	2.357	0.86226	27.363	0.1240	4208	37.760	153.7	0.67	0.27

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMP	Q	IVAL	PHI	ETAC
COMBUSTOR	0	19	12 2														
46.260	105.621	3281	653.1(1076)	1.2825	23.685	2972											
46.260	50.959	2856	494.3(922)	1.2967	25.686	2788	1.011	2819	2.357	0.86163	27.383	0.1241	4209	37.741	153.7	0.67	0.27
COMBUSTOR	0	20	13 4														
47.310	102.004	3553	639.6(1171)	1.2686	23.993	3056											
47.310	55.964	3121	473.9(1012)	1.2836	23.998	2881	1.000	2880	2.377	0.80191	27.383	0.1333	4362	35.886	159.3	0.67	0.39
COMBUSTOR	0	21	14 3														
47.327	101.821	3565	639.4(1175)	1.2679	24.006	3060											
47.327	56.040	3134	474.0(1017)	1.2830	24.011	2885	0.997	2877	2.378	0.79923	27.383	0.1338	4368	35.730	159.5	0.67	0.39
COMBUSTOR	0	22	15 4														
48.110	98.206	3811	629.9(1261)	1.2545	24.287	3128											
48.110	53.929	3365	454.1(1096)	1.2709	24.298	2958	1.002	2966	2.394	0.74727	27.383	0.1431	4500	34.439	164.5	0.67	0.50
COMBUSTOR	0	23	16 6														
48.767	93.092	3482	638.5(1261)	1.2735	21.706	3187											
48.767	44.389	2958	420.5(1050)	1.2914	21.710	2958	1.116	3302	2.574	0.69616	27.674	0.1552	4605	35.728	166.4	1.03	0.30
COMBUSTOR	0	24	17 2														
48.777	93.039	3485	638.4(1262)	1.2734	21.708	3188											
48.777	44.269	2959	419.7(1050)	1.2914	21.712	2958	1.118	3308	2.574	0.69526	27.674	0.1554	4607	35.741	166.5	1.03	0.30
COMBUSTOR	0	25	18 4														
49.307	90.646	3587	633.2(1301)	1.2680	21.814	3220											
49.307	37.879	2966	373.4(1051)	1.2896	21.820	2952	1.221	3606	2.583	0.65024	27.674	0.1662	4714	30.437	170.3	1.03	0.33
COMBUSTOR	0	26	19 4														
50.717	83.341	3892	621.1(1420)	1.2508	22.130	3307											
50.717	30.881	3164	307.4(1122)	1.2781	22.147	3013	1.315	3962	2.608	0.55418	27.674	0.1950	4950	34.118	178.9	1.03	0.43
COMBUSTOR	0	27	20 4														
52.817	77.457	4108	605.8(1504)	1.2368	22.378	3360											
52.817	22.275	3192	203.4(1128)	1.2733	22.411	3003	1.495	4488	2.624	0.45421	27.674	0.2379	5217	31.676	188.5	1.03	0.50
COMBUSTOR	0	28	21 3														
53.317	77.705	4087	602.6(1495)	1.2381	22.364	3354											
53.317	20.082	3100	172.4(1092)	1.2769	22.396	2964	1.565	4639	2.623	0.43565	27.674	0.2480	5266	31.410	190.3	1.03	0.50
COMBUSTOR	0	29	22 4														
54.067	75.842	4137	597.9(1515)	1.2346	22.425	3365											
54.067	18.471	3107	146.6(1093)	1.2757	22.463	2962	1.604	4752	2.627	0.41066	27.674	0.2631	5332	30.327	192.7	1.03	0.51
COMBUSTOR	0	30	23 3														
54.827	74.731	4160	593.5(1523)	1.2329	22.458	3369											
54.827	16.837	3077	118.8(1080)	1.2763	22.499	2946	1.655	4874	2.629	0.38834	27.674	0.2782	5392	29.414	194.8	1.03	0.52
COMBUSTOR	0	31	24 4														
55.760	73.152	4194	588.6(1537)	1.2303	22.504	3376											
55.760	15.300	3059	90.2(1072)	1.2762	22.550	2934	1.702	4994	2.631	0.36443	27.674	0.2965	5457	28.283	197.2	1.03	0.54
COMBUSTOR	0	32	25 5														
56.252	56.772	4621	586.3(1705)	1.1949	22.953	3458											
56.252	14.489	3639	100.0(1294)	1.2440	23.100	3121	1.580	4933	2.671	0.29364	27.674	0.3679	5608	22.511	202.7	1.03	0.69
COMBUSTOR	0	33	26 5														
56.307	68.305	4178	586.0(1530)	1.2307	22.495	3371											
56.307	10.762	2863	15.6(995)	1.2832	22.541	2847	1.877	5342	2.636	0.29287	27.674	0.3689	5612	24.316	202.8	1.03	0.53
COMBUSTOR	0	34	27 3														
56.447	68.186	4183	585.4(1532)	1.2304	22.501	3372											
56.447	10.647	2862	12.1(994)	1.2832	22.548	2846	1.882	5356	2.637	0.29071	27.674	0.3717	5620	24.197	203.1	1.03	0.54
COMBUSTOR	0	35	28 21														
56.527	48.957	5138	585.0(1912)	1.1491	23.490	3535											
56.527	14.036	4431	84.7(1604)	1.1666	23.979	3274	1.528	5004	2.692	0.29402	27.674	0.3675	5625	22.864	203.3	1.03	1.00
COMBUSTOR	0	36	29 21														
56.807	49.048	5137	583.6(1911)	1.1491	23.492	3535											
56.807	13.575	4410	70.7(1595)	1.1676	23.991	3267	1.551	5067	2.691	0.29315	27.674	0.3686	5640	23.085	203.8	1.03	1.00
COMBUSTOR	0	37	30 21														
57.033	48.883	5136	582.9(1911)	1.1491	23.493	3534											
57.033	12.951	4383	54.0(1583)	1.1668	24.005	3257	1.579	5144	2.691	0.29245	27.674	0.3695	5650	23.580	204.2	1.03	1.00

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	PUMP	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
57.757	47.358	5128	579.9(1908)	1.1490	23.493	3531											
57.757	10.950	4299	2.9(1547)	1.1726	24.044	3228	1.604	5374	2.693	0.28791	27.674	0.3753	5674	24.043	205.0	1.03	1.00
COMBUSTOR	0	39	32 21														
58.777	37.663	5095	576.5(1894)	1.1471	23.465	3519											
58.777	6.000	4067	=126.4(1449)	1.1831	24.126	3149	1.885	5931	2.712	0.28607	27.674	0.3777	5682	26.367	205.3	1.03	1.00
COMBUSTOR	0	40	33 21														
60.787	51.426	5130	570.6(1908)	1.1500	23.517	3532											
60.787	16.050	4466	103.1(1619)	1.1663	23.970	3287	1.471	4837	2.685	0.29603	27.674	0.3650	5661	22.251	204.5	1.03	1.00
COMBUSTOR	0	41	34 21														
62.207	52.338	5128	566.3(1907)	1.1503	23.525	3531											
62.207	16.312	4461	98.7(1616)	1.1669	23.975	3286	1.472	4837	2.682	0.30405	27.674	0.3553	5645	22.856	204.0	1.03	1.00
COMBUSTOR	0	42	35 21														
64.671	49.639	5112	557.4(1900)	1.1502	23.530	3525											
64.671	19.102	4569	170.2(1663)	1.1623	23.910	3323	1.325	4401	2.685	0.28821	27.674	0.3749	5620	19.713	203.1	1.03	1.00
COMBUSTOR	0	43	36 200														
65.047	46.079	5101	555.8(1895)	1.1496	23.522	3520											
65.047	20.133	4634	217.8(1691)	1.1593	23.860	3346	1.229	4112	2.691	0.26794	27.674	0.4032	5616	17.123	203.0	1.03	1.00
COMBUSTOR REGEN		44	37 3														
65.047	46.079	5187	643.9(1935)	1.1467	23.399	3555											
65.047	19.112	4700	277.5(1721)	1.1548	23.783	3369	1.271	4282	2.708	0.26794	27.674	0.4032	5657	17.830	204.4	1.03	1.00
NOZZLE AE		45	38 5														
87.283	46.079	5101	555.8(1846)	1.1496	23.522	3520											
87.283	1.369	2967	=627.8(1004)	1.2632	24.271	2771	2.778	7696	2.691	0.05578	27.674	1.9371	7299	6.671	263.7	1.03	1.00
NOZZLE PO		46	39 5														
87.283	46.079	5101	555.8(1846)	1.1496	23.522	3520											
87.283	0.401	2279	=890.5(741)	1.2844	24.272	2448	3.475	8507	2.691	0.02350	27.674	4.5974	7769	3.107	281.5	1.03	1.00
NOZZLE AE REGEN		47	40 5														
87.283	46.079	5187	643.9(1935)	1.1467	23.399	3555											
87.283	1.426	3124	=565.5(1065)	1.2574	24.269	2837	2.742	7780	2.708	0.05578	27.674	1.9371	7399	6.743	267.4	1.03	1.00
NOZZLE PO REGEN		48	41 5														
87.283	46.079	5187	643.9(1935)	1.1467	23.399	3555											
87.283	0.401	2386	=850.5(781)	1.2807	24.272	2502	3.457	8648	2.706	0.02281	27.674	4.7359	7924	3.066	286.3	1.03	1.00
FICTIVE COMBUSTR		68	61 0														
65.047	318.819	5330	555.8(1988)	1.1669	23.769	3607											
65.047	0.401	1434	=1188.1(444)	1.3254	24.272	1973	4.734	9342	2.528	0.04100	27.674	2.6552	6305	5.952	300.1	1.03	1.00
FICTIVE NOZZLE		69	62 0														
87.283	29.703	5020	531.3(1861)	1.1467	23.496	3490											
87.283	1.678	3348	=473.5(1155)	1.2445	24.262	2922	2.427	7091	2.723	0.05578	27.674	1.9371	6931	6.146	250.5	1.03	1.00

READING = 0065 BLOCK = 120 TIME = 218.033 MACH 6.0 PI = 745.999 TI = 3054.4 PAGE 4

XABS	P-IB	P-OB	PDA	QUX	W-IB	G-OB	CA-ALL	P-IB/PSO	P-IB/PIO	P-OB/PSO	P-OB/PIO
6.981E-01	1.070E 00	0.000	-4.394E-01	0.000	0.000	0.000	2.470E-02	2.670E 00	1.434E-03	0.000	0.000
1.836E 01	1.070E 00	0.000	-3.562E 01	0.000	0.000	0.000	1.634E 02	2.670E 00	1.434E-03	0.000	0.000
3.070E 01	2.200E 00	0.000	-1.662E 02	0.000	0.000	0.000	5.053E 02	5.490E 00	2.949E-03	0.000	0.000
3.508E 01	3.892E 00	0.000	-3.656E 02	0.000	0.000	0.000	6.804E 02	9.711E 00	5.217E-03	0.000	0.000
3.518E 01	3.918E 00	5.903E 00	-4.325E 02	0.000	0.000	0.000	6.850E 02	9.777E 00	5.252E-03	1.473E 01	7.913E-03
3.519E 01	3.920E 00	5.870E 00	-4.326E 02	0.000	0.000	0.000	6.853E 02	9.781E 00	5.254E-03	1.465E 01	7.869E-03
3.555E 01	4.010E 00	3.932E 00	-4.397E 02	0.000	0.000	0.000	7.213E 02	1.001E 01	5.375E-03	9.811E 00	5.270E-03
3.586E 01	3.968E 00	2.275E 00	-4.535E 02	-3.183E 02	-3.183E 02	0.000	7.525E 02	9.901E 00	5.319E-03	5.677E 00	3.050E-03
3.606E 01	3.940E 00	3.080E 00	-4.639E 02	-3.220E 02	-3.220E 02	0.000	7.733E 02	9.832E 00	5.282E-03	7.686E 00	4.129E-03
3.648E 01	4.203E 00	4.745E 00	-4.823E 02	-3.299E 02	-3.299E 02	0.000	8.169E 02	1.049E 01	5.634E-03	1.184E 01	6.361E-03
3.701E 01	4.205E 00	6.846E 00	-5.055E 02	-3.558E 02	-3.403E 02	-1.558E 01	8.730E 02	1.049E 01	5.637E-03	1.708E 01	9.177E-03
3.732E 01	4.097E 00	8.062E 00	-5.161E 02	-3.672E 02	-3.465E 02	-2.064E 01	9.059E 02	1.022E 01	5.492E-03	2.012E 01	1.081E-02
3.803E 01	3.845E 00	1.540E 01	-5.295E 02	-3.959E 02	-3.619E 02	-3.208E 01	9.838E 02	9.594E 00	5.154E-03	3.344E 01	1.797E-02
3.834E 01	5.381E 00	1.570E 01	-5.279E 02	-4.062E 02	-3.692E 02	-3.694E 01	1.018E 03	1.343E 01	7.213E-03	3.918E 01	2.105E-02
3.875E 01	7.449E 00	1.537E 01	-5.286E 02	-4.243E 02	-3.809E 02	-4.342E 01	1.065E 03	1.859E 01	9.985E-03	3.835E 01	2.060E-02
3.881E 01	7.733E 00	1.532E 01	-5.289E 02	-4.270E 02	-3.827E 02	-4.431E 01	1.071E 03	1.930E 01	1.037E-02	3.824E 01	2.054E-02
3.901E 01	8.750E 00	1.560E 01	-5.288E 02	-4.368E 02	-3.893E 02	-4.747E 01	1.094E 03	2.183E 01	1.173E-02	3.894E 01	2.092E-02
3.932E 01	1.387E 01	1.602E 01	-5.343E 02	-4.526E 02	-4.004E 02	-5.221E 01	1.130E 03	3.461E 01	1.859E-02	3.999E 01	2.148E-02
3.950E 01	1.692E 01	1.549E 01	-5.424E 02	-4.627E 02	-4.077E 02	-5.501E 01	1.151E 03	4.223E 01	2.269E-02	3.367E 01	1.809E-02
3.981E 01	1.741E 01	9.250E 00	-5.614E 02	-4.806E 02	-4.210E 02	-5.962E 01	1.187E 03	4.344E 01	2.334E-02	2.308E 01	1.240E-02
4.000E 01	1.772E 01	9.178E 00	-5.746E 02	-4.926E 02	-4.301E 02	-6.246E 01	1.209E 03	4.421E 01	2.375E-02	2.290E 01	1.230E-02
4.040E 01	2.122E 01	9.028E 00	-6.042E 02	-5.195E 02	-4.504E 02	-6.906E 01	1.256E 03	5.295E 01	2.845E-02	2.253E 01	1.210E-02
4.041E 01	2.131E 01	9.025E 00	-6.049E 02	-5.202E 02	-4.509E 02	-6.925E 01	1.257E 03	5.317E 01	2.856E-02	2.252E 01	1.210E-02
4.129E 01	2.904E 01	8.695E 00	-6.891E 02	-6.091E 02	-5.006E 02	-1.085E 02	1.362E 03	7.246E 01	3.893E-02	2.170E 01	1.166E-02
4.130E 01	2.913E 01	8.691E 00	-6.901E 02	-6.104E 02	-5.012E 02	-1.098E 02	1.363E 03	7.268E 01	3.904E-02	2.169E 01	1.165E-02
4.137E 01	2.970E 01	8.667E 00	-6.973E 02	-6.191E 02	-5.051E 02	-1.140E 02	1.371E 03	7.410E 01	3.981E-02	2.165E 01	1.162E-02
4.150E 01	3.086E 01	1.088E 01	-7.117E 02	-6.377E 02	-5.134E 02	-1.243E 02	1.386E 03	7.701E 01	4.137E-02	2.716E 01	1.459E-02
4.246E 01	3.225E 01	2.687E 01	-7.630E 02	-8.056E 02	-5.834E 02	-2.202E 02	1.501E 03	8.047E 01	4.323E-02	6.704E 01	3.602E-02
4.409E 01	5.225E 01	5.396E 01	-7.344E 02	-1.165E 03	-7.612E 02	-4.038E 02	1.698E 03	1.304E 02	7.004E-02	1.346E 02	7.233E-02
4.431E 01	5.499E 01	5.449E 01	-7.314E 02	-1.222E 03	-7.921E 02	-4.295E 02	1.725E 03	1.372E 02	7.371E-02	1.360E 02	7.305E-02
4.480E 01	6.101E 01	5.567E 01	-7.294E 02	-1.364E 03	-8.653E 02	-4.985E 02	1.785E 03	1.522E 02	8.179E-02	1.389E 02	7.463E-02
4.480E 01	6.100E 01	5.568E 01	-7.298E 02	-1.364E 03	-8.656E 02	-4.988E 02	1.785E 03	1.522E 02	8.178E-02	1.389E 02	7.463E-02
4.625E 01	5.478E 01	5.916E 01	-6.263E 02	-1.851E 03	-1.083E 03	-7.681E 02	1.963E 03	1.367E 02	7.343E-02	1.476E 02	7.930E-02
4.626E 01	5.473E 01	5.918E 01	-6.246E 02	-1.855E 03	-1.085E 03	-7.702E 02	1.964E 03	1.366E 02	7.337E-02	1.477E 02	7.933E-02
4.731E 01	5.022E 01	6.171E 01	-4.577E 02	-2.225E 03	-1.231E 03	-9.945E 02	2.095E 03	1.253E 02	6.732E-02	1.540E 02	8.272E-02
4.733E 01	5.033E 01	6.175E 01	-4.509E 02	-2.251E 03	-1.233E 03	-9.981E 02	2.097E 03	1.256E 02	6.747E-02	1.541E 02	8.277E-02
4.811E 01	5.555E 01	5.231E 01	-3.088E 02	-2.490E 03	-1.336E 03	-1.154E 03	2.194E 03	1.386E 02	7.446E-02	1.305E 02	7.012E-02
4.877E 01	4.439E 01	4.439E 01	-1.602E 02	-2.686E 03	-1.418E 03	-1.267E 03	2.277E 03	1.108E 02	5.950E-02	1.108E 02	5.950E-02
4.878E 01	4.427E 01	4.427E 01	-1.579E 02	-2.688E 03	-1.420E 03	-1.269E 03	2.278E 03	1.105E 02	5.934E-02	1.105E 02	5.934E-02
4.931E 01	3.788E 01	3.788E 01	-4.443E 01	-2.831E 03	-1.483E 03	-1.347E 03	2.344E 03	9.452E 01	5.078E-02	9.452E 01	5.078E-02
5.072E 01	3.088E 01	3.088E 01	2.097E 02	-3.107E 03	-1.640E 03	-1.528E 03	2.522E 03	7.706E 01	4.140E-02	7.706E 01	4.140E-02
5.282E 01	2.227E 01	2.227E 01	5.024E 02	-3.589E 03	-1.840E 03	-1.749E 03	2.788E 03	5.558E 01	2.986E-02	5.558E 01	2.986E-02
5.332E 01	2.008E 01	2.008E 01	5.574E 02	-3.678E 03	-1.882E 03	-1.796E 03	2.852E 03	5.011E 01	2.692E-02	5.011E 01	2.692E-02
5.407E 01	1.847E 01	1.847E 01	6.320E 02	-3.807E 03	-1.941E 03	-1.866E 03	2.948E 03	4.609E 01	2.476E-02	4.609E 01	2.476E-02
5.483E 01	1.684E 01	1.684E 01	7.005E 02	-3.928E 03	-1.995E 03	-1.933E 03	3.045E 03	4.201E 01	2.257E-02	4.201E 01	2.257E-02
5.576E 01	1.530E 01	1.530E 01	7.756E 02	-4.065E 03	-2.056E 03	-2.009E 03	3.165E 03	3.818E 01	2.051E-02	3.818E 01	2.051E-02
5.625E 01	1.449E 01	1.449E 01	9.303E 02	-4.130E 03	-2.082E 03	-2.047E 03	3.209E 03	3.616E 01	1.942E-02	3.616E 01	1.942E-02
5.631E 01	7.125E 00	1.440E 01	9.344E 02	-4.136E 03	-2.085E 03	-2.051E 03	3.216E 03	1.778E 01	9.551E-03	3.593E 01	1.930E-02
5.645E 01	7.125E 00	1.417E 01	9.437E 02	-4.154E 03	-2.092E 03	-2.062E 03	3.234E 03	1.778E 01	9.551E-03	3.535E 01	1.899E-02
5.653E 01	1.404E 01	1.404E 01	9.493E 02	-4.163E 03	-2.095E 03	-2.068E 03	3.245E 03	3.503E 01	1.882E-02	3.503E 01	1.882E-02
5.681E 01	1.357E 01	1.357E 01	9.674E 02	-4.197E 03	-2.108E 03	-2.089E 03	3.280E 03	3.387E 01	1.820E-02	3.387E 01	1.820E-02
5.703E 01	1.295E 01	1.295E 01	9.803E 02	-4.225E 03	-2.117E 03	-2.106E 03	3.309E 03	3.232E 01	1.736E-02	3.232E 01	1.736E-02
5.776E 01	1.095E 01	1.095E 01	1.013E 03	-4.305E 03	-2.145E 03	-2.160E 03	3.402E 03	2.732E 01	1.468E-02	2.732E 01	1.468E-02
5.878E 01	6.000E 00	6.000E 00	1.032E 03	-4.400E 03	-2.176E 03	-2.224E 03	3.502E 03	1.497E 01	8.043E-03	1.497E 01	8.043E-03
6.079E 01	1.605E 01	1.605E 01	1.035E 03	-4.502E 03	-2.218E 03	-2.344E 03	3.790E 03	4.005E 01	2.151E-02	4.005E 01	2.151E-02
6.221E 01	1.631E 01	1.631E 01	1.035E 03	-4.663E 03	-2.247E 03	-2.436E 03	3.972E 03	4.070E 01	2.187E-02	4.070E 01	2.187E-02

READING = 0065 BLOCK = 120 TIME = 218.033 MACH 6.0 P1 = 745.999 TT = 3054.4

XABS	P-IB	P-OB	PDA	QUX	W-IB	W-OB	CA-ALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.467E 01	1.910E 01	1.910E 01	1.035E 03	-4.929E 03	-2.527E 03	-2.603E 03	4.269E 03	4.767E 01	2.561E-02	4.767E 01	2.561E-02
6.505E 01	2.074E 01	1.953E 01	1.035E 03	-4.973E 03	-2.542E 03	-2.631E 03	4.357E 03	5.175E 01	2.780E-02	4.875E 01	2.618E-02
6.509E 01	2.074E 01	1.957E 01	1.035E 03	-4.977E 03	-2.544E 03	-2.634E 03	4.342E 03	5.175E 01	2.780E-02	4.884E 01	2.624E-02
6.529E 01	1.969E 01	1.980E 01	1.035E 03	-5.000E 03	-2.552E 03	-2.648E 03	4.368E 03	4.913E 01	2.639E-02	4.941E 01	2.654E-02
6.695E 01	1.098E 01	9.060E 00	1.201E 03	-5.163E 03	-2.408E 03	-2.755E 03	4.583E 03	2.740E 01	1.472E-02	2.410E 01	1.295E-02
6.762E 01	7.678E 00	9.307E 00	1.392E 03	-5.217E 03	-2.425E 03	-2.793E 03	4.665E 03	1.916E 01	1.029E-02	2.323E 01	1.248E-02
6.839E 01	3.885E 00	7.105E 00	1.582E 03	-5.279E 03	-2.440E 03	-2.839E 03	4.760E 03	9.694E 00	5.208E-03	1.773E 01	9.524E-03
6.911E 01	3.460E 00	5.045E 00	1.705E 03	-5.342E 03	-2.451E 03	-2.890E 03	4.848E 03	8.634E 00	4.638E-03	1.259E 01	6.763E-03
6.972E 01	3.109E 00	4.095E 00	1.789E 03	-5.392E 03	-2.459E 03	-2.933E 03	4.922E 03	7.735E 00	4.155E-03	1.022E 01	5.489E-03
7.067E 01	2.126E 00	2.615E 00	1.883E 03	-5.449E 03	-2.467E 03	-2.981E 03	5.036E 03	5.305E 00	2.850E-03	6.525E 00	3.505E-03
7.110E 01	1.685E 00	2.426E 00	1.914E 03	-5.468E 03	-2.471E 03	-2.998E 03	5.088E 03	4.205E 00	2.259E-03	6.054E 00	3.252E-03
7.263E 01	1.485E 00	1.755E 00	2.001E 03	-5.524E 03	-2.480E 03	-3.044E 03	5.273E 03	3.705E 00	1.990E-03	4.379E 00	2.353E-03
7.278E 01	1.465E 00	1.719E 00	2.008E 03	-5.529E 03	-2.480E 03	-3.048E 03	5.290E 03	3.656E 00	1.964E-03	4.290E 00	2.305E-03
7.353E 01	1.633E 00	1.540E 00	2.062E 03	-5.555E 03	-2.484E 03	-3.071E 03	5.374E 03	4.074E 00	2.189E-03	3.843E 00	2.064E-03
7.353E 01	1.634E 00	1.539E 00	2.065E 03	-5.555E 03	-2.484E 03	-3.071E 03	5.375E 03	4.076E 00	2.190E-03	3.840E 00	2.063E-03
7.486E 01	1.930E 00	0.000	2.103E 03	-5.607E 03	-2.490E 03	-3.117E 03	5.427E 03	4.816E 00	2.587E-03	0.000	0.000
7.771E 01	2.730E 00	0.000	2.196E 03	-5.618E 03	-2.500E 03	-3.117E 03	5.525E 03	6.812E 00	3.660E-03	0.000	0.000
8.161E 01	2.125E 00	0.000	2.300E 03	-5.628E 03	-2.511E 03	-3.117E 03	5.630E 03	5.303E 00	2.849E-03	0.000	0.000
8.442E 01	1.570E 00	0.000	2.341E 03	-5.637E 03	-2.520E 03	-3.117E 03	5.684E 03	3.918E 00	2.105E-03	0.000	0.000
8.728E 01	3.465E 00	0.000	2.401E 03	-5.652E 03	-2.534E 03	-3.117E 03	5.707E 03	8.646E 00	4.645E-03	0.000	0.000
8.728E 01	3.469E 00	0.000	2.401E 03	-5.652E 03	-2.534E 03	-3.117E 03	5.707E 03	8.656E 00	4.650E-03	0.000	0.000

READING = 0065 BLOCK = 120 TIME = 218.033 MACH 6.0 P1 = 745.999 T1 = 3054.4

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.192E 02	1.192E 02	2.168E-03	4.257E-02
4.041E 01	1.902E-01	1.194E 02	2.499E-03	4.106E-02
4.129E 01	1.794E 01	1.373E 02	2.616E-03	4.773E-02
4.130E 01	1.919E-01	1.375E 02	2.389E-03	5.094E-02
4.137E 01	1.201E 00	1.387E 02	2.359E-03	5.185E-02
4.150E 01	2.432E 00	1.411E 02	2.374E-03	5.474E-02
4.246E 01	1.698E 01	1.581E 02	2.468E-03	6.631E-02
4.409E 01	2.624E 01	1.844E 02	2.773E-03	8.031E-02
4.431E 01	3.418E 00	1.878E 02	3.056E-03	7.253E-02
4.480E 01	7.632E 00	1.954E 02	3.067E-03	7.264E-02
4.480E 01	3.106E-02	1.954E 02	3.067E-03	7.264E-02
4.625E 01	2.227E 01	2.177E 02	3.324E-03	6.807E-02
4.626E 01	1.484E-01	2.179E 02	2.978E-03	7.709E-02
4.731E 01	1.414E 01	2.320E 02	2.923E-03	7.706E-02
4.733E 01	2.277E-01	2.322E 02	3.045E-03	7.365E-02
4.811E 01	1.036E 01	2.426E 02	3.009E-03	7.207E-02
4.877E 01	9.040E 00	2.516E 02	3.260E-03	6.385E-02
4.878E 01	1.401E-01	2.518E 02	2.999E-03	6.984E-02
4.931E 01	7.122E 00	2.589E 02	2.937E-03	6.580E-02
5.072E 01	1.821E 01	2.771E 02	2.876E-03	5.841E-02
5.282E 01	2.521E 01	3.023E 02	2.879E-03	4.653E-02
5.332E 01	5.866E 00	3.082E 02	2.957E-03	4.229E-02
5.407E 01	8.689E 00	3.169E 02	2.918E-03	4.013E-02
5.483E 01	8.462E 00	3.253E 02	2.914E-03	3.748E-02
5.576E 01	1.005E 01	3.354E 02	2.895E-03	3.498E-02
5.625E 01	3.251E 00	3.386E 02	2.867E-03	3.172E-02
5.631E 01	4.876E-01	3.391E 02	3.045E-03	2.504E-02
5.645E 01	1.262E 00	3.404E 02	2.810E-03	2.645E-02
5.653E 01	7.410E-01	3.411E 02	3.344E-03	2.760E-02
5.681E 01	2.738E 00	3.439E 02	3.337E-03	2.709E-02
5.703E 01	2.234E 00	3.461E 02	3.333E-03	2.636E-02
5.776E 01	7.322E 00	3.534E 02	3.334E-03	2.372E-02
5.878E 01	1.116E 01	3.646E 02	3.438E-03	1.558E-02
6.079E 01	2.111E 01	3.857E 02	3.297E-03	2.976E-02
6.221E 01	1.352E 01	3.992E 02	3.286E-03	3.021E-02
6.467E 01	2.220E 01	4.214E 02	3.311E-03	3.174E-02
6.505F 01	2.962E 00	4.244F 02	3.356E-03	3.126E-02
6.509E 01	3.030E-01	4.247E 02	3.437E-03	3.207E-02
6.529E 01	1.558E 00	4.262E 02	3.434E-03	3.183E-02
6.695E 01	1.283E 01	4.391E 02	3.377E-03	2.304E-02
6.762E 01	4.605E 00	4.437E 02	3.361E-03	2.044E-02
6.839E 01	4.747E 00	4.484F 02	3.315E-03	1.530E-02
6.911E 01	3.766E 00	4.522E 02	3.275E-03	1.275E-02
6.972E 01	2.842E 00	4.550F 02	3.251E-03	1.129E-02
7.067E 01	3.754E 00	4.588E 02	3.188E-03	8.280E-03
7.110E 01	1.447E 00	4.602E 02	3.167E-03	7.455E-03
7.263E 01	4.573E 00	4.648E 02	3.129E-03	6.193E-03
7.278E 01	3.946E-01	4.652E 02	3.126E-03	6.110E-03
7.353E 01	1.921E 00	4.671E 02	3.121E-03	6.084E-03
7.353E 01	3.675E-03	4.671E 02	3.121E-03	6.084E-03
7.486E 01	1.250E 00	4.684E 02	3.139E-03	7.042E-03
7.771E 01	2.779E 00	4.712E 02	3.174E-03	9.090E-03
8.161E 01	5.033E 00	4.742F 02	3.117E-03	7.482E-03
8.442E 01	1.331E 00	4.755E 02	3.063E-03	5.920E-03
8.728E 01	6.466E-01	4.762E 02	3.106E-03	1.068E-02
8.728E 01	0.000	4.762E 02	3.106E-03	1.069E-02

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1830.	(LBF)
MEASURED THRUST	1628.	(LBF)
CALCULATED SPECIFIC IMPULSE	2242.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1995.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.7183	
MEASURED THRUST COEFFICIENT	0.6391	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	7026.	(LBF)
NET THRUST	1925.	(LBF)
SPECIFIC IMPULSE	2359.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.7556	

MOMENTUM AND FORCES

INLET FRICTION DRAG	119.2	(LBF)
INLET MOMENTUM CHANGE	-723.4	(LBF)
COMBUSTOR FRICTION DRAG	305.2	(LBF)
COMBUSTOR STRUT DRAG	10.91	(LBF)
COMBUSTOR MOMENTUM CHANGE	1239.	(LBF)
NOZZLE FRICTION DRAG	51.79	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1315.	(LBF)
NOZZLE PRESSURE INTEGRAL	1367.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-1500.	(LBF)
TOTAL STRUT DRAG	10.91	(LBF)
CAVITY FORCE	-1262.	(LBF)
CALCULATED LOAD CELL FORCE	-932.	(LBF)
MEASURED LOAD CELL FORCE	-1134.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, -157.6, -119.4,

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9806	
ADDITIVE DRAG COEFFICIENT	0.0009	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1656	
DELTA PT2	0.1173	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4274	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1679	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9025	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9060	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9389	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8854	
ENTHALPY AT P0 - SUPERSONIC	-4.10	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	34.20	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0304	
EQUIVALENCE RATIO	1.035	
COMBUSTOR EFFICIENCY	1.000	
TOTAL PRESSURE RATIO	0.1445	
COMBUSTOR EFFECTIVENESS	0.8685	

INJECTOR DISCHARGE COEFFICIENTS 0.8361, 0.7074, 0.7952, 0.7054

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9496	
NOZZLE COEFFICIENT - CT	0.8643	
PROCESS EFFICIENCY	0.8693	
KINETIC ENERGY EFFICIENCY	0.8866	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3069	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.191	(IN)
NOZZLE SHROUD TRAILING EDGE	73.531	(IN)
NOZZLE PLUG TRAILING EDGE	87.285	(IN)
STRUT LEADING EDGE	56.447	(IN)
STRUT TRAILING EDGE	65.047	(IN)
COMBUSTOR EXIT	65.047	(IN)

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.292	B
1C	44.300	
2A	48.767	D
2C	46.250	E
3A	54.057	
3B	56.242	
4	44.792	

Reading 65

t = 235.13 sec.

READING = 0065 BLOCK = 139 TIME = 235.133 MACH 6.0 P1 = 746.249 T1 = 3033.5 PAGE 1

RAMJET PERFORMANCE

3-3-71

290

S U M M A R Y R E P O R T

	P	T	M	GAMMA	MOLWT	SONV	MACH	VFL	S	A/A	W	A/AC	MOMTM	Q	IVAL	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	746.249	3033	681.0(806)	1.2927	28.852	2599											
0.000	0.397	414	=29.6(100)	1.3989	28.851	999	5.969	5963	1.831	0.10679	26.870	0.9824	5080	9.896	189.1		
SPIKE TIP NS		2	0 3														
0.000	18.000	3033	681.0(806)	1.2925	28.851	2599											
0.000	16.192	2961	659.2(785)	1.2948	28.851	2571	0.407	1046	2.088	0.10679	26.870	0.9824	4948	1.736	184.1		
WIND TUNNEL		3	0 0														
0.000	746.249	3033	681.0(806)	1.2927	28.852	2599											
0.000	0.379	409	=30.9(98)	1.3988	28.851	992	6.015	5969	1.831	0.10336	26.008	0.9824	4920	9.588	189.2		
SPIKE TIP NS		4	0 0														
0.600	18.000	3033	681.0(806)	1.2925	28.851	2599											
0.600	16.522	2967	660.8(787)	1.2946	28.851	2573	0.391	1006	2.088	0.10336	26.008	0.9824	4920	1.616	189.2		
INLET THROAT		5	0 2														
40.400	314.567	2971	662.0(788)	1.2946	28.851	2574											
40.400	15.169	1415	220.3(350)	1.3537	28.851	1817	2.587	4701	1.885	0.94053	26.870	0.1115	4360	68.718	162.2		
INLET UPNRSK		6	0 3														
40.400	314.567	2971	662.0(788)	1.2946	28.851	2574											
40.400	13.040	1360	205.8(335)	1.3570	28.851	1784	2.679	4778	1.885	0.85503	26.870	0.1227	4400	63.483	163.7		
INLET DNNRSK		7	0 4														
40.400	124.723	2971	662.0(788)	1.2946	28.851	2574											
40.400	107.496	2871	632.1(759)	1.2977	28.851	2534	0.483	1223	1.948	0.85503	26.870	0.1227	4400	16.255	163.7		
COMBUSTOR	0	8	1 21														
40.410	253.570	2920	665.7(818)	1.2977	27.176	2633											
40.410	15.189	1464	228.6(384)	1.3526	27.176	1903	2.457	4677	1.992	0.94497	27.000	0.1116	4359	68.682	161.4	0.17	0.07
COMBUSTOR	0	9	2 21														
41.292	207.484	2842	666.9(818)	1.3017	26.322	2644											
41.292	18.686	1575	274.7(429)	1.3480	26.322	2003	2.212	4430	2.047	0.94941	27.069	0.1113	4260	65.361	157.4	0.25	0.03
COMBUSTOR	0	10	3 21														
41.302	215.266	2809	666.9(808)	1.3032	26.287	2631											
41.302	16.726	1539	275.1(419)	1.3502	26.286	1983	2.233	4427	2.041	0.94970	27.069	0.1113	4259	65.344	157.3	0.25	0.00
COMBUSTOR	0	11	4 21														
41.367	213.704	2803	666.6(806)	1.3035	26.281	2629											
41.367	18.983	1544	278.1(420)	1.3500	26.281	1986	2.220	4409	2.041	0.94971	27.069	0.1113	4251	65.074	157.0	0.25	0.00
COMBUSTOR	0	12	5 3														
41.500	207.006	2808	666.0(808)	1.3032	26.289	2631											
41.500	20.501	1592	289.8(434)	1.3475	26.288	2014	2.155	4339	2.044	0.95082	27.069	0.1111	4234	64.116	156.4	0.25	0.01
COMBUSTOR	0	13	6 3														
42.460	181.870	2855	660.9(822)	1.3008	26.354	2647											
42.460	22.571	1719	307.2(471)	1.3408	26.354	2085	2.017	4207	2.058	0.94188	27.069	0.1122	4188	61.581	154.7	0.25	0.06
COMBUSTOR	0	14	7 6														
44.087	117.069	3725	649.0(1089)	1.2582	27.368	2918											
44.087	47.103	3070	424.9(876)	1.2813	27.378	2673	1.253	3348	2.145	0.91011	27.069	0.1161	4218	47.360	155.8	0.25	0.84
COMBUSTOR	0	15	8 3														
44.310	115.576	3771	647.0(1103)	1.2556	27.429	2929											
44.310	49.506	3155	434.8(903)	1.2777	27.441	2703	1.206	3259	2.147	0.90806	27.069	0.1164	4218	45.993	155.8	0.25	0.88
COMBUSTOR	0	16	9 4														
44.800	113.256	3836	642.1(1123)	1.2517	27.526	2945											
44.800	54.783	3301	455.3(948)	1.2713	27.539	2753	1.111	3057	2.150	0.90424	27.069	0.1169	4212	42.965	155.6	0.25	0.96
COMBUSTOR	0	17	10 2														
44.802	113.281	3835	642.1(1123)	1.2518	27.525	2945											
44.802	54.786	3300	455.2(948)	1.2714	27.538	2752	1.111	3058	2.150	0.90454	27.069	0.1168	4212	42.980	155.6	0.25	0.96
COMBUSTOR	0	18	11 6														
46.250	106.721	3353	651.1(1099)	1.2789	23.802	2993											
46.250	57.369	2920	488.7(942)	1.2935	23.804	2809	1.015	2850	2.358	0.86250	27.391	0.1240	4248	38.202	155.1	0.66	0.30

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	H/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 2														
46.260	106.690	3355	651.0(1100)	1.2788	23.605	2994											
46.260	57.387	2923	488.6(943)	1.2933	23.607	2810	1.014	2850	2.358	0.86187	27.391	0.1241	4250	36.170	155.2	0.66	0.31
COMBUSTOR	0	20	13 4														
47.310	103.502	3660	638.1(1206)	1.2630	24.146	3085											
47.310	59.260	3251	479.7(1056)	1.2775	24.155	2924	0.965	2815	2.379	0.80213	27.391	0.1333	4421	35.096	161.4	0.66	0.43
COMBUSTOR	0	21	14 3														
47.327	103.337	3672	637.9(1211)	1.2623	24.162	3088											
47.327	59.365	3265	480.0(1061)	1.2768	24.169	2929	0.960	2812	2.380	0.79945	27.391	0.1338	4428	34.931	161.6	0.66	0.44
COMBUSTOR	0	22	15 4														
48.110	99.906	3956	629.0(1310)	1.2462	24.488	3164											
48.110	55.906	3518	453.1(1147)	1.2630	24.504	3003	0.988	2967	2.397	0.74748	27.391	0.1431	4574	34.460	167.0	0.66	0.56
COMBUSTOR	0	23	16 6														
48.767	94.764	3595	638.8(1308)	1.2678	21.756	3227											
48.767	45.064	3060	413.3(1091)	1.2865	21.762	2999	1.120	3359	2.585	0.69667	27.694	0.1552	4683	36.372	169.1	1.04	0.33
COMBUSTOR	0	24	17 2														
48.777	94.715	3598	638.7(1309)	1.2677	21.758	3228											
48.777	44.910	3060	412.2(1091)	1.2865	21.764	2999	1.123	3366	2.585	0.69577	27.694	0.1554	4685	36.400	169.2	1.04	0.33
COMBUSTOR	0	25	18 4														
49.307	93.153	3658	633.8(1332)	1.2644	21.825	3246											
49.307	36.762	2992	353.0(1062)	1.2878	21.833	2962	1.265	3748	2.590	0.65071	27.694	0.1662	4791	37.902	173.0	1.04	0.35
COMBUSTOR	0	26	19 5														
50.717	84.723	3999	621.9(1465)	1.2446	22.179	3340											
50.717	31.331	3262	299.1(1162)	1.2731	22.201	3049	1.318	4019	2.618	0.55458	27.694	0.1950	5024	34.635	181.4	1.04	0.45
COMBUSTOR	0	27	20 4														
52.817	78.973	4209	607.0(1547)	1.2305	22.422	3389											
52.817	22.500	3280	191.8(1164)	1.2686	22.465	3035	1.502	4558	2.633	0.45455	27.694	0.2379	5294	32.198	191.2	1.04	0.53
COMBUSTOR	0	28	21 3														
53.317	79.601	4173	603.9(1533)	1.2328	22.393	3380											
53.317	20.112	3164	158.0(1118)	1.2734	22.433	2988	1.581	4724	2.630	0.43597	27.694	0.2480	5344	32.005	193.0	1.04	0.52
COMBUSTOR	0	29	22 4														
54.067	77.927	4214	599.4(1549)	1.2298	22.445	3388											
54.067	18.411	3158	130.7(1114)	1.2728	22.491	2981	1.625	4843	2.634	0.41096	27.694	0.2631	5409	30.930	195.6	1.04	0.53
COMBUSTOR	0	30	23 3														
54.827	77.091	4226	595.1(1553)	1.2288	22.466	3390											
54.827	16.687	3110	101.1(1095)	1.2742	22.515	2958	1.681	4972	2.634	0.38862	27.694	0.2782	5469	30.027	197.5	1.04	0.54
COMBUSTOR	0	31	24 4														
55.760	74.959	4276	590.3(1573)	1.2251	22.528	3400											
55.760	15.344	3120	75.7(1098)	1.2729	22.584	2957	1.716	5075	2.639	0.36470	27.694	0.2965	5533	28.762	199.8	1.04	0.56
COMBUSTOR	0	32	25 5														
56.252	58.040	4718	588.1(1748)	1.1870	22.994	3480											
56.252	14.636	3742	86.7(1337)	1.2366	23.180	3191	1.590	5009	2.678	0.29386	27.694	0.3679	5691	22.875	205.5	1.04	0.72
COMBUSTOR	0	33	26 5														
56.307	69.128	4295	587.9(1580)	1.2229	22.553	3403											
56.307	11.029	2976	4.0(1040)	1.2776	22.616	2891	1.869	5405	2.646	0.29308	27.694	0.3689	5695	24.618	205.6	1.04	0.57
COMBUSTOR	0	34	27 3														
56.447	66.925	4302	587.3(1583)	1.2224	22.562	3404											
56.447	10.928	2979	0.9(1040)	1.2774	22.626	2892	1.873	5417	2.647	0.29093	27.694	0.3717	5703	24.490	205.9	1.04	0.57
COMBUSTOR	0	35	28 21														
56.527	51.319	5149	586.9(1921)	1.1494	23.438	3543											
56.527	14.241	4419	72.5(1602)	1.1684	23.933	3275	1.549	5074	2.693	0.29424	27.694	0.3675	5708	23.200	206.1	1.04	1.00
COMBUSTOR	0	36	29 21														
56.807	51.501	5148	585.8(1921)	1.1495	23.440	3543											
56.807	13.837	4399	59.7(1594)	1.1695	23.944	3268	1.570	5131	2.693	0.29337	27.694	0.3686	5723	23.393	206.6	1.04	1.00
COMBUSTOR	0	37	30 21														
57.033	51.386	5147	584.9(1920)	1.1495	23.441	3542											
57.033	13.183	4371	42.1(1582)	1.1708	23.958	3259	1.599	5212	2.693	0.29266	27.694	0.3695	5733	23.703	207.0	1.04	1.00

READING = 0065 BLOCK = 139 TIME = 235.133 MACH 6.0 PT = 746.249 TT = 3033.5

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	M/A	M	A/AC	MONTP	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
57.757	49.929	5140	582.0(1917)	1.1493	23.441	3540											
57.757	11.085	4281	=11.9(1543)	1.1753	23.998	3229	1.669	5452	2.695	0.28812	27.694	0.3753	5758	24.410	207.9	1.04	1.00
COMBUSTOR	0	39	32 21														
58.777	39.503	5106	578.7(1903)	1.1474	23.413	3527											
58.777	5.887	4030	=149.4(1438)	1.1885	24.080	3145	1.919	6036	2.714	0.28628	27.694	0.3777	5765	26.854	206.2	1.04	1.00
COMBUSTOR	0	40	33 21														
60.787	55.927	5141	573.0(1917)	1.1503	23.464	3540											
60.787	17.175	4486	111.1(1631)	1.1667	23.907	3299	1.457	4808	2.687	0.29625	27.694	0.3650	5744	22.135	207.4	1.04	1.00
COMBUSTOR	0	41	34 21														
62.207	54.664	5138	568.8(1916)	1.1506	23.472	3539											
62.207	16.219	4440	81.0(1611)	1.1690	23.934	3284	1.505	4940	2.685	0.30428	27.694	0.3555	5729	23.362	206.9	1.04	1.00
COMBUSTOR	0	42	35 200														
64.671	51.619	5122	560.1(1909)	1.1504	23.475	3533											
64.671	19.444	4565	163.2(1665)	1.1633	23.861	3326	1.340	4457	2.688	0.28842	27.694	0.3749	5703	19.976	205.9	1.04	1.00
COMBUSTOR	0	43	36 200														
65.047	47.777	5111	558.6(1904)	1.1497	23.467	3528											
65.047	20.262	4625	207.6(1691)	1.1602	23.815	3347	1.252	4190	2.694	0.26813	27.694	0.4032	5700	17.462	205.8	1.04	1.00
COMBUSTOR REGEN	44	37	3														
65.047	47.777	5186	637.2(1939)	1.1472	23.358	3559											
65.047	17.978	4644	232.0(1700)	1.1572	23.774	3353	1.343	4502	2.709	0.26813	27.694	0.4032	5732	18.762	207.0	1.04	1.00
NOZZLE AE	45	38	5														
87.283	47.777	5111	558.6(1860)	1.1497	23.467	3528											
87.283	1.346	2926	=641.5(990)	1.2648	24.196	2757	2.810	7749	2.694	0.05582	27.694	1.9371	7338	6.722	265.0	1.04	1.00
NOZZLE PO	46	39	5														
87.283	47.777	5111	558.6(1860)	1.1497	23.467	3528											
87.283	0.397	2248	=899.7(732)	1.2857	24.197	2437	3.505	8542	2.694	0.02363	27.694	4.5763	7818	3.137	282.3	1.04	1.00
NOZZLE AE REGEN	47	40	5														
87.283	47.777	5188	637.2(1939)	1.1472	23.358	3559											
87.283	1.395	3064	=587.0(1044)	1.2603	24.195	2817	2.779	7827	2.709	0.05582	27.694	1.9371	7429	6.789	268.5	1.04	1.00
NOZZLE PO REGEN	48	41	5														
87.283	47.777	5188	637.2(1939)	1.1472	23.358	3559											
87.283	0.397	2343	=864.7(767)	1.2824	24.197	2484	3.489	8669	2.709	0.02301	27.694	4.6986	7940	3.100	286.7	1.04	1.00
FICTIVE COMBUSTR	68	61	0														
65.047	314.567	5335	558.6(1995)	1.1668	23.707	3613											
65.047	0.397	1451	=1188.0(444)	1.3257	24.197	1974	4.735	9349	2.535	0.04065	27.694	2.6615	8318	5.902	300.3	1.04	1.00
FICTIVE NOZZLE	69	62	0														
87.283	32.142	5035	534.0(1872)	1.1472	23.446	3500											
87.283	1.611	3262	=507.0(1123)	1.2518	24.192	2897	2.492	7217	2.723	0.05582	27.694	1.9371	7012	6.261	253.2	1.04	1.00

READING = 0065 BLOCK = 139 TIME = 235.133 MACH 6.0 PI = 746.249 TI = 3033.5

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PIO	P-OB/PSO	P-OB/PIO
6.961E+01	1.070E 00	0.000	-4.389E-01	0.000	0.000	0.000	2.470E+02	2.694E 00	1.434E-03	0.000	0.000
1.836E 01	1.070E 00	0.000	-3.562E 01	0.000	0.000	0.000	1.634E 02	2.694E 00	1.434E-03	0.000	0.000
3.070E 01	2.210E 00	0.000	-1.686E 02	0.000	0.000	0.000	5.053E 02	5.565E 00	2.961E-03	0.000	0.000
3.508E 01	3.896E 00	0.000	-3.664E 02	0.000	0.000	0.000	6.804E 02	9.811E 00	5.221E-03	0.000	0.000
3.518E 01	3.919E 00	5.853E 00	-4.329E 02	0.000	0.000	0.000	6.850E 02	9.869E 00	5.252E-03	1.474E 01	7.843E-03
3.519E 01	3.921E 00	5.821E 00	-4.329E 02	0.000	0.000	0.000	6.853E 02	9.872E 00	5.254E-03	1.466E 01	7.800E-03
3.555E 01	4.000E 00	3.895E 00	-4.403E 02	0.000	0.000	0.000	7.213E 02	1.007E 01	5.360E-03	9.688E 00	5.220E-03
3.586E 01	3.961E 00	2.250E 00	-4.541E 02	-3.187E 02	-3.187E 02	0.000	7.525E 02	9.974E 00	5.308E-03	5.666E 00	3.015E-03
3.606E 01	3.935E 00	3.066E 00	-4.645E 02	-3.224E 02	-3.224E 02	0.000	7.733E 02	9.908E 00	5.273E-03	7.719E 00	4.108E-03
3.648E 01	4.189E 00	4.752E 00	-4.829E 02	-3.303E 02	-3.303E 02	0.000	8.169E 02	1.055E 01	5.614E-03	1.197E 01	6.368E-03
3.701E 01	4.200E 00	6.880E 00	-5.058E 02	-3.561E 02	-3.407E 02	-1.538E 01	8.730E 02	1.058E 01	5.628E-03	1.732E 01	9.220E-03
3.732E 01	4.105E 00	8.112E 00	-5.164E 02	-3.673E 02	-3.469E 02	-2.038E 01	9.059E 02	1.034E 01	5.501E-03	2.043E 01	1.087E-02
3.803E 01	3.885E 00	1.340E 01	-5.301E 02	-3.940E 02	-3.623E 02	-3.168E 01	9.838E 02	9.782E 00	5.206E-03	3.374E 01	1.796E-02
3.834E 01	5.427E 00	1.567E 01	-5.286E 02	-4.061E 02	-3.696E 02	-3.649E 01	1.018E 03	1.367E 01	7.273E-03	3.947E 01	2.101E-02
3.875E 01	7.503E 00	1.535E 01	-5.298E 02	-4.237E 02	-3.808E 02	-4.291E 01	1.065E 03	1.889E 01	1.005E-02	3.864E 01	2.056E-02
3.881E 01	7.789E 00	1.530E 01	-5.301E 02	-4.263E 02	-3.825E 02	-4.379E 01	1.071E 03	1.961E 01	1.044E-02	3.853E 01	2.050E-02
3.901E 01	8.810E 00	1.557E 01	-5.302E 02	-4.357E 02	-3.887E 02	-4.692E 01	1.094E 03	2.218E 01	1.181E-02	3.920E 01	2.086E-02
3.932E 01	1.399E 01	1.597E 01	-5.360E 02	-4.507E 02	-3.991E 02	-5.161E 01	1.130E 03	3.522E 01	1.874E-02	4.023E 01	2.141E-02
3.950E 01	1.707E 01	1.355E 01	-5.444E 02	-4.602E 02	-4.058E 02	-5.439E 01	1.151E 03	4.300E 01	2.288E-02	3.413E 01	1.816E-02
3.981E 01	1.746E 01	9.500E 00	-5.633E 02	-4.769E 02	-4.179E 02	-5.895E 01	1.187E 03	4.397E 01	2.340E-02	2.392E 01	1.273E-02
4.000E 01	1.770E 01	9.424E 00	-5.762E 02	-4.880E 02	-4.262E 02	-6.178E 01	1.209E 03	4.458E 01	2.372E-02	2.373E 01	1.263E-02
4.040E 01	2.103E 01	9.267E 00	-6.050E 02	-5.126E 02	-4.445E 02	-6.810E 01	1.256E 03	5.296E 01	2.818E-02	2.333E 01	1.242E-02
4.041E 01	2.112E 01	9.263E 00	-6.056E 02	-5.132E 02	-4.449E 02	-6.828E 01	1.257E 03	5.317E 01	2.830E-02	2.332E 01	1.241E-02
4.129E 01	2.846E 01	8.917E 00	-6.867E 02	-5.901E 02	-4.898E 02	-1.004E 02	1.362E 03	7.169E 01	3.813E-02	2.245E 01	1.195E-02
4.130E 01	2.854E 01	8.913E 00	-6.877E 02	-5.912E 02	-4.903E 02	-1.009E 02	1.363E 03	7.186E 01	3.824E-02	2.244E 01	1.194E-02
4.137E 01	2.908E 01	8.887E 00	-6.946E 02	-5.965E 02	-4.939E 02	-1.046E 02	1.371E 03	7.322E 01	3.897E-02	2.238E 01	1.191E-02
4.150E 01	3.019E 01	1.081E 01	-7.085E 02	-6.140E 02	-5.013E 02	-1.127E 02	1.386E 03	7.601E 01	4.045E-02	2.723E 01	1.449E-02
4.246E 01	2.044E 01	2.470E 01	-7.373E 02	-7.532E 02	-5.661E 02	-1.871E 02	1.501E 03	5.146E 01	2.739E-02	6.221E 01	3.310E-02
4.409E 01	4.596E 01	4.824E 01	-6.806E 02	-1.075E 03	-7.394E 02	-3.355E 02	1.698E 03	1.157E 02	6.159E-02	1.215E 02	6.465E-02
4.431E 01	4.946E 01	4.955E 01	-6.774E 02	-1.128E 03	-7.703E 02	-3.574E 02	1.725E 03	1.245E 02	6.628E-02	1.248E 02	6.640E-02
4.480E 01	5.715E 01	5.242E 01	-6.749E 02	-1.261E 03	-8.439E 02	-4.176E 02	1.785E 03	1.439E 02	7.658E-02	1.320E 02	7.024E-02
4.480E 01	5.715E 01	5.243E 01	-6.752E 02	-1.262E 03	-8.442E 02	-4.178E 02	1.785E 03	1.439E 02	7.658E-02	1.320E 02	7.025E-02
4.625E 01	5.384E 01	6.090E 01	-5.649E 02	-1.723E 03	-1.064E 03	-6.592E 02	1.963E 03	1.356E 02	7.215E-02	1.533E 02	8.161E-02
4.626E 01	5.382E 01	6.096E 01	-5.631E 02	-1.727E 03	-1.065E 03	-6.611E 02	1.964E 03	1.355E 02	7.212E-02	1.535E 02	8.169E-02
4.731E 01	5.142E 01	6.710E 01	-3.775E 02	-2.077E 03	-1.213E 03	-8.043E 02	2.095E 03	1.295E 02	6.890E-02	1.690E 02	8.992E-02
4.733E 01	5.155E 01	6.720E 01	-3.702E 02	-2.083E 03	-1.215E 03	-8.675E 02	2.097E 03	1.298E 02	6.905E-02	1.692E 02	9.005E-02
4.811E 01	5.665E 01	5.516E 01	-2.133E 02	-2.329E 03	-1.319E 03	-1.010E 03	2.194E 03	1.426E 02	7.591E-02	1.389E 02	7.392E-02
4.877E 01	4.506E 01	4.506E 01	-5.904E 01	-2.516E 03	-1.403E 03	-1.114E 03	2.277E 03	1.135E 02	6.039E-02	1.135E 02	6.039E-02
4.878E 01	4.491E 01	4.491E 01	-5.669E 01	-2.519E 03	-1.404E 03	-1.115E 03	2.278E 03	1.131E 02	6.018E-02	1.131E 02	6.018E-02
4.931E 01	3.676E 01	3.676E 01	5.613E 01	-2.657E 03	-1.468E 03	-1.189E 03	2.344E 03	9.257E 01	4.926E-02	9.257E 01	4.926E-02
5.072E 01	3.133E 01	3.133E 01	3.078E 02	-2.985E 03	-1.627E 03	-1.359E 03	2.522E 03	7.889E 01	4.198E-02	7.889E 01	4.198E-02
5.282E 01	2.250E 01	2.250E 01	6.042E 02	-3.397E 03	-1.829E 03	-1.568E 03	2.788E 03	5.666E 01	3.015E-02	5.666E 01	3.015E-02
5.332E 01	2.011E 01	2.011E 01	6.596E 02	-3.483E 03	-1.871E 03	-1.612E 03	2.852E 03	5.064E 01	2.695E-02	5.064E 01	2.695E-02
5.407E 01	1.841E 01	1.841E 01	7.341E 02	-3.608E 03	-1.931E 03	-1.677E 03	2.948E 03	4.636E 01	2.467E-02	4.636E 01	2.467E-02
5.483E 01	1.669E 01	1.669E 01	8.021E 02	-3.726E 03	-1.986E 03	-1.740E 03	3.045E 03	4.202E 01	2.236E-02	4.202E 01	2.236E-02
5.576E 01	1.534E 01	1.534E 01	8.771E 02	-3.858E 03	-2.047E 03	-1.811E 03	3.165E 03	3.864E 01	2.056E-02	3.864E 01	2.056E-02
5.625E 01	1.464E 01	1.464E 01	1.038E 03	-3.920E 03	-2.075E 03	-1.846E 03	3.209E 03	3.685E 01	1.961E-02	3.685E 01	1.961E-02
5.631E 01	7.500E 00	1.456E 01	1.042E 03	-3.927E 03	-2.077E 03	-1.850E 03	3.216E 03	1.889E 01	1.005E-02	3.666E 01	1.951E-02
5.645E 01	7.500E 00	1.436E 01	1.052E 03	-3.943E 03	-2.084E 03	-1.859E 03	3.234E 03	1.889E 01	1.005E-02	3.615E 01	1.924E-02
5.653E 01	1.424E 01	1.424E 01	1.057E 03	-3.952E 03	-2.088E 03	-1.865E 03	3.245E 03	3.586E 01	1.908E-02	3.586E 01	1.908E-02
5.681E 01	1.384E 01	1.384E 01	1.076E-03	-3.985E 03	-2.100E 03	-1.884E 03	3.280E 03	3.484E 01	1.854E-02	3.484E 01	1.854E-02
5.703E 01	1.318E 01	1.318E 01	1.089E 03	-4.010E 03	-2.110E 03	-1.900E 03	3.309E 03	3.319E 01	1.767E-02	3.319E 01	1.767E-02
5.776E 01	1.108E 01	1.108E 01	1.122E 03	-4.089E 03	-2.138E 03	-1.951E 03	3.402E 03	2.791E 01	1.485E-02	2.791E 01	1.485E-02
5.878E 01	5.887E 00	5.887E 00	1.141E 03	-4.181E 03	-2.169E 03	-2.011E 03	3.532E 03	1.482E 01	7.889E-03	1.482E 01	7.889E-03
6.079E 01	1.717E 01	1.717E 01	1.144E 03	-4.336E 03	-2.213E 03	-2.125E 03	3.790E 03	4.325E 01	2.302E-02	4.325E 01	2.302E-02
6.221E 01	1.622E 01	1.622E 01	1.144E 03	-4.455E 03	-2.242E 03	-2.213E 03	3.972E 03	4.084E 01	2.173E-02	4.084E 01	2.173E-02

READING = 0065 BLOCK = 139 TIME = 235.133 MACH 6.0 PT = 746.249 TT = 3055.5

XABS	P-IB	P-OB	PDA	QQX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.467E 01	1.944E 01	1.944E 01	1.144E 03	-4.696E 03	-2.324E 03	-2.373E 03	4.289E 03	4.896E 01	2.606E-02	4.896E 01	2.606E-02
6.505E 01	2.059E 01	1.999E 01	1.144E 03	-4.739E 03	-2.339E 03	-2.400E 03	4.337E 03	5.184E 01	2.759E-02	5.020E 01	2.671E-02
6.509E 01	2.059E 01	1.999E 01	1.144E 03	-4.744E 03	-2.341E 03	-2.402E 03	4.342E 03	5.184E 01	2.759E-02	5.033E 01	2.678E-02
6.529E 01	1.956E 01	2.025E 01	1.144E 03	-4.766E 03	-2.350E 03	-2.416E 03	4.368E 03	4.926E 01	2.622E-02	5.099E 01	2.714E-02
6.695E 01	1.106E 01	9.400E 00	1.311E 03	-4.927E 03	-2.408E 03	-2.519E 03	4.583E 03	2.785E 01	1.482E-02	2.367E 01	1.260E-02
6.762E 01	7.705E 00	9.315E 00	1.501E 03	-4.981E 03	-2.425E 03	-2.556E 03	4.665E 03	1.940E 01	1.033E-02	2.346E 01	1.248E-02
6.839E 01	3.850E 00	7.098E 00	1.690E 03	-5.042E 03	-2.441E 03	-2.601E 03	4.760E 03	9.694E 00	5.159E-03	1.787E 01	9.512E-03
6.911E 01	3.501E 00	5.025E 00	1.813E 03	-5.104E 03	-2.453E 03	-2.651E 03	4.844E 03	8.815E 00	4.691E-03	1.265E 01	6.734E-03
6.972E 01	3.205E 00	4.034E 00	1.898E 03	-5.153E 03	-2.461E 03	-2.692E 03	4.922E 03	8.070E 00	4.295E-03	1.016E 01	5.405E-03
7.067E 01	2.138E 00	2.490E 00	1.992E 03	-5.209E 03	-2.470E 03	-2.739E 03	5.036E 03	5.385E 00	2.865E-03	6.270E 00	3.337E-03
7.110E 01	1.655E 00	2.335E 00	2.023E 03	-5.228E 03	-2.473E 03	-2.755E 03	5.088E 03	4.167E 00	2.218E-03	5.880E 00	3.129E-03
7.263E 01	1.523E 00	1.785E 00	2.109E 03	-5.284E 03	-2.482E 03	-2.802E 03	5.273E 03	3.835E 00	2.041E-03	4.495E 00	2.392E-03
7.278E 01	1.510E 00	1.768E 00	2.116E 03	-5.289E 03	-2.483E 03	-2.806E 03	5.290E 03	3.802E 00	2.023E-03	4.451E 00	2.369E-03
7.353E 01	1.645E 00	1.680E 00	2.173E 03	-5.316E 03	-2.487E 03	-2.828E 03	5.374E 03	4.143E 00	2.205E-03	4.230E 00	2.251E-03
7.353E 01	1.646E 00	1.680E 00	2.176E 03	-5.316E 03	-2.487E 03	-2.828E 03	5.375E 03	4.144E 00	2.206E-03	4.229E 00	2.251E-03
7.486E 01	1.885E 00	0.000	2.213E 03	-5.369E 03	-2.494E 03	-2.875E 03	5.427E 03	4.746E 00	2.526E-03	0.000	0.000
7.771E 01	2.730E 00	0.000	2.305E 03	-5.380E 03	-2.505E 03	-2.875E 03	5.525E 03	6.874E 00	3.658E-03	0.000	0.000
8.141E 01	2.035E 00	0.000	2.407E 03	-5.392E 03	-2.517E 03	-2.875E 03	5.630E 03	5.124E 00	2.727E-03	0.000	0.000
8.442E 01	1.575E 00	0.000	2.447E 03	-5.402E 03	-2.527E 03	-2.875E 03	5.684E 03	3.966E 00	2.111E-03	0.000	0.000
8.728E 01	3.520E 00	0.000	2.509E 03	-5.419E 03	-2.544E 03	-2.875E 03	5.707E 03	8.863E 00	4.717E-03	0.000	0.000
8.728E 01	3.524E 00	0.000	2.509E 03	-5.419E 03	-2.544E 03	-2.875E 03	5.707E 03	8.874E 00	4.722E-03	0.000	0.000

READING = 0065 BLOCK # 139 TIME = 255.133 MACH 6.0 P1 = 746.249 TT = 3033.5 PAGE 6

X	ΔDRAG	CDRAG	CF	HC
4.040E 01	1.193E 02	1.193E 02	2.172E-03	4.263E-02
4.041E 01	1.919E-01	1.195E 02	2.558E-03	4.079E-02
4.129E 01	1.787E 01	1.373E 02	2.554E-03	4.820E-02
4.130E 01	1.887E-01	1.375E 02	2.378E-03	5.069E-02
4.137E 01	1.195E 00	1.387E 02	2.357E-03	5.146E-02
4.150E 01	2.426E 00	1.412E 02	2.373E-03	5.405E-02
4.246E 01	1.724E 01	1.584E 02	2.404E-03	5.654E-02
4.409E 01	2.674E 01	1.851E 02	2.583E-03	8.191E-02
4.431E 01	3.536E 00	1.887E 02	3.009E-03	7.122E-02
4.480E 01	8.043E 00	1.967E 02	3.038E-03	7.243E-02
4.460E 01	3.256E-02	1.967E 02	3.038E-03	7.243E-02
4.625E 01	2.300E 01	2.197E 02	3.333E-03	6.859E-02
4.626E 01	1.588E-01	2.199E 02	3.333E-03	6.859E-02
4.731E 01	1.499E 01	2.349E 02	2.954E-03	7.853E-02
4.733E 01	2.252E-01	2.351E 02	3.063E-03	7.463E-02
4.811E 01	1.035E 01	2.455E 02	3.034E-03	7.397E-02
4.877E 01	9.196E 00	2.547E 02	3.284E-03	6.465E-02
4.878E 01	1.437E-01	2.548E 02	3.020E-03	7.072E-02
4.931E 01	7.371E 00	2.622E 02	2.949E-03	6.544E-02
5.072E 01	1.877E 01	2.810E 02	2.881E-03	5.932E-02
5.282E 01	2.572E 01	3.067E 02	2.898E-03	4.693E-02
5.332E 01	6.004E 00	3.127E 02	2.972E-03	4.251E-02
5.407E 01	8.891E 00	3.216E 02	2.926E-03	4.069E-02
5.483E 01	8.671E 00	3.302E 02	2.917E-03	3.752E-02
5.576E 01	1.025E 01	3.405E 02	2.895E-03	3.530E-02
5.625E 01	3.309E 00	3.438E 02	2.874E-03	3.211E-02
5.631E 01	4.967E-01	3.443E 02	3.064E-03	2.552E-02
5.645E 01	1.287E 00	3.456E 02	2.836E-03	2.690E-02
5.653E 01	7.513E-01	3.463E 02	3.321E-03	2.829E-02
5.681E 01	2.757E 00	3.491E 02	3.313E-03	2.784E-02
5.703E 01	2.248E 00	3.513E 02	3.309E-03	2.706E-02
5.776E 01	7.372E 00	3.587E 02	3.308E-03	2.426E-02
5.878E 01	1.125E 01	3.700E 02	3.408E-03	1.555E-02
6.079E 01	2.112E 01	3.911E 02	3.277E-03	3.137E-02
6.221E 01	1.356E 01	4.046E 02	3.264E-03	3.003E-02
6.467E 01	2.246E 01	4.271E 02	3.293E-03	3.258E-02
6.505E 01	2.993E 00	4.301E 02	3.337E-03	3.195E-02
6.509E 01	3.112E-01	4.304E 02	3.419E-03	3.260E-02
6.529E 01	1.619E 00	4.320E 02	3.417E-03	3.257E-02
6.695E 01	1.321E 01	4.452E 02	3.358E-03	2.318E-02
6.762E 01	4.694E 00	4.499E 02	3.340E-03	2.066E-02
6.839E 01	4.823E 00	4.547E 02	3.287E-03	1.536E-02
6.911E 01	3.812E 00	4.585E 02	3.245E-03	1.284E-02
6.972E 01	2.881E 00	4.614E 02	3.221E-03	1.140E-02
7.067E 01	3.779E 00	4.652E 02	3.157E-03	8.179E-03
7.110E 01	1.439E 00	4.666E 02	3.137E-03	7.513E-03
7.263E 01	4.606E 00	4.713E 02	3.107E-03	6.329E-03
7.278E 01	4.049E-01	4.717E 02	3.105E-03	6.283E-03
7.353E 01	1.987E 00	4.736E 02	3.102E-03	6.343E-03
7.353E 01	3.822E-03	4.736E 02	3.102E-03	6.344E-03
7.486E 01	1.271E 00	4.749E 02	3.111E-03	6.959E-03
7.771E 01	2.791E 00	4.777E 02	3.146E-03	9.140E-03
8.161E 01	3.029E 00	4.807E 02	3.085E-03	7.284E-03
8.442E 01	1.328E 00	4.821E 02	3.039E-03	5.969E-03
8.728E 01	6.575E-01	4.827E 02	3.138E-03	1.066E-02
8.728E 01	0.000	4.827E 02	3.138E-03	1.087E-02

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1928.	(LBF)
MEASURED THRUST	1970.	(LBF)
CALCULATED SPECIFIC IMPULSE	2339.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2390.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.7606	
MEASURED THRUST COEFFICIENT	0.7772	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	7099.	(LBF)
NET THRUST	2015.	(LBF)
SPECIFIC IMPULSE	2444.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.7949	

MOMENTUM AND FORCES

INLET FRICTION DRAG	119.3	(LBF)
INLET MOMENTUM CHANGE	-724.3	(LBF)
COMBUSTOR FRICTION DRAG	510.8	(LBF)
COMBUSTOR STRUT DRAG	10.93	(LBF)
COMBUSTOR MOMENTUM CHANGE	1340.	(LBF)
NOZZLE FRICTION DRAG	52.64	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1312.	(LBF)
NOZZLE PRESSURE INTEGRAL	1365.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-1560.	(LBF)
TOTAL STRUT DRAG	10.93	(LBF)
CAVITY FORCE	-1248.	(LBF)
CALCULATED LOAD CELL FORCE	-880.	(LBF)
MEASURED LOAD CELL FORCE	-838.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, -157.8, -119.4,

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9824	
ADDITIVE DRAG COEFFICIENT	0.0008	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1648	
DELTA PT2	0.1172	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.4215	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1671	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.9015	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9060	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9385	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8856	
ENTHALPY AT P0 - SUPERSONIC	-5.00	(BTU/LBF)
ENTHALPY AT P0 - SUBSONIC	32.61	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0307
EQUIVALENCE RATIO	1.045
COMBUSTOR EFFICIENCY	1.000
TOTAL PRESSURE RATIO	0.1519
COMBUSTOR EFFECTIVENESS	0.8739

INJECTOR DISCHARGE COEFFICIENTS 0.8426, 0.6750, 0.7967, 0.7047

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9555
NOZZLE COEFFICIENT - CT	0.8716
PROCESS EFFICIENCY	0.8876
KINETIC ENERGY EFFICIENCY	0.9005

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3069	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.191	(IN)
NOZZLE SHROUD TRAILING EDGE	73.531	(IN)
NOZZLE PLUG TRAILING EDGE	87.285	(IN)
STRUT LEADING EDGE	56.447	(IN)
STRUT TRAILING EDGE	65.047	(IN)
COMBUSTOR EXIT	65.047	(IN)

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.292	B
1C	44.300	
2A	48.767	D
2C	46.250	E
3A	54.057	
3B	56.242	
4	44.792	

Reading 69

t = 177.00 sec.

READING = 00497 BLOCK = 71 TIME = 177.004 MACH 6.0 PT = 749.749 TT = 3010.01

3-3-75

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	H	GAM A	MOLWT	SONV	MACH	VEL	S	A/A	R	A/AC	MOMTM	C	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	749.749	3010	673.8(799)	1.2933	28.860	2590											
0.000	0.395	409	=30.8(98)	1.3988	28.859	993	5.982	5938	1.829	0.10709	27.007	0.9846	5084	9.883	188.3		
SPIKE TIP NS		2	0 4														
0.600	18.137	3010	673.8(799)	1.2932	28.859	2590											
0.600	16.352	2940	652.6(774)	1.2954	28.859	2561	0.803	1071	2.085	0.10709	27.007	0.9846	4969	1.716	188.7		
WIND TUNNEL		3	0 0														
0.000	749.749	3010	673.8(799)	1.2933	28.860	2590											
0.000	0.382	405	=31.8(98)	1.3988	28.859	988	6.015	5942	1.829	0.10463	26.385	0.9846	4969	9.662	188.3		
SPIKE TIP NS		4	0 0														
0.600	18.137	3010	673.8(799)	1.2932	28.859	2590											
0.600	16.444	2944	653.7(780)	1.2953	28.859	2563	0.391	1003	2.085	0.10463	26.385	0.9846	4969	1.631	188.3		
INLET THROAT		5	0 4														
40.400	280.338	2974	662.8(789)	1.2945	28.859	2575											
40.400	16.379	1490	239.9(369)	1.3494	28.859	1861	2.472	4600	1.893	0.94454	27.007	0.1116	4330	67.523	160.3		
INLET UPNRSK		6	0 3														
40.400	280.338	2974	662.8(789)	1.2945	28.859	2575											
40.400	14.058	1432	224.6(354)	1.3527	28.859	1827	2.564	4683	1.893	0.85868	27.007	0.1228	4373	62.490	161.9		
INLET DNNRSK		7	0 4														
40.400	123.419	2974	662.8(789)	1.2945	28.859	2575											
40.400	105.720	2870	631.7(748)	1.2977	28.859	2533	0.493	1248	1.949	0.85868	27.007	0.1228	4373	16.659	161.9		
COMBUSTOR	0	8	1 4														
40.410	279.681	2974	662.8(789)	1.2945	28.859	2575											
40.410	16.399	1491	240.3(370)	1.3493	28.859	1862	2.470	4598	1.893	0.94443	27.007	0.1116	4329	67.484	160.3		
COMBUSTOR	0	9	2 4														
41.298	223.365	2965	660.1(786)	1.2947	28.859	2572											
41.298	18.950	1634	278.6(408)	1.3417	28.859	1943	2.248	4369	1.908	0.94636	27.007	0.1114	4208	64.259	155.8		
COMBUSTOR	0	10	3 4														
41.363	219.836	2964	659.9(786)	1.2948	28.859	2571											
41.363	19.166	1645	281.6(411)	1.3412	28.859	1949											
							2.232	4351	1.909	0.94683	27.007	0.1114	4199	64.022	155.5		
COMBUSTOR	0	11	4 4														
41.500	212.566	2962	659.3(785)	1.2948	28.859	2571											
41.500	19.628	1668	287.8(417)	1.3401	28.859	1962	2.197	4312	1.911	0.94761	27.007	0.1113	4179	63.498	154.7		
COMBUSTOR	0	12	5 5														
42.460	187.501	2948	654.9(781)	1.2953	28.859	2565											
42.460	21.036	1742	308.1(437)	1.3366	28.859	2003	2.080	4166	1.918	0.93926	27.007	0.1123	4102	60.806	151.9		
COMBUSTOR	0	13	6 4														
44.083	177.132	2918	645.9(772)	1.2962	28.859	2553											
44.083	20.441	1735	306.1(435)	1.3369	28.859	1999	2.062	4123	1.919	0.90713	27.007	0.1162	4070	58.126	150.7		
COMBUSTOR	0	14	7 4														
44.310	176.084	2913	644.6(771)	1.2963	28.859	2551											
44.310	20.434	1735	306.0(435)	1.3370	28.859	1999	2.059	4116	1.919	0.90543	27.007	0.1165	4064	57.914	150.5		
COMBUSTOR	0	15	8 4														
44.798	172.830	2904	641.9(768)	1.2966	28.859	2547											
44.798	20.518	1739	307.2(436)	1.3368	28.859	2001	2.045	4093	1.919	0.90189	27.007	0.1169	4050	57.364	150.0		
COMBUSTOR	0	16	9 4														
44.800	172.806	2904	641.9(768)	1.2966	28.859	2547											
44.800	20.512	1739	307.1(436)	1.3368	28.859	2001	2.045	4093	1.919	0.90170	27.007	0.1169	4050	57.393	150.0		
COMBUSTOR	0	17	10 4														
46.260	157.895	2881	634.8(761)	1.2973	28.859	2537											
46.260	19.611	1743	308.3(438)	1.3366	28.859	2003	2.018	4042	1.923	0.84934	27.007	0.1241	4016	53.352	148.7		
COMBUSTOR	0	18	11 4														
47.310	145.506	2865	630.1(757)	1.2978	28.859	2531											
47.310	18.287	1738	306.8(436)	1.3368	28.859	2001	2.010	4022	1.927	0.79041	27.007	0.1334	4001	49.401	148.1		

	P	T	M	GAMMA	MOLWT	SONV	MACH	VEL	S	Y/A	W	A/AC	MOMTM	D	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 4														
47.323	145.348	2865	630.0(757)	1.2978	28.859	2551											
47.323	16.253	1737	306.7(430)	1.3368	28.859	2000	2.011	4022	1.927	0.78924	27.007	0.1336	4001	44.333	148.1		
COMBUSTOR	0	20	13 5														
48.110	137.781	2854	626.7(753)	1.2982	28.859	2526											
48.110	16.767	1716	301.0(430)	1.3378	28.859	1989	2.030	4037	1.929	0.73657	27.007	0.1432	4004	46.213	148.2		
COMBUSTOR	0	21	14 4														
48.773	132.803	2846	624.2(751)	1.2984	28.859	2523											
48.773	14.882	1675	289.9(419)	1.3397	28.859	1966	2.080	4090	1.931	0.67851	27.007	0.1554	4026	43.130	149.1		
COMBUSTOR	0	22	15 3														
49.303	130.167	2840	622.4(749)	1.2986	28.859	2520											
49.303	15.419	1636	279.3(409)	1.3416	28.859	1945	2.131	4144	1.932	0.63457	27.007	0.1662	4049	40.862	149.9		
COMBUSTOR	0	23	16 5														
50.713	121.900	2826	618.3(745)	1.2991	28.859	2515											
50.713	10.654	1560	258.6(388)	1.3455	28.859	1902											
							2.230	4241	1.935	0.54083	27.007	0.1950	4092	35.646	151.5		
COMBUSTOR	0	24	17 4														
52.813	110.705	2809	613.2(740)	1.2996	28.859	2508											
52.813	8.106	1481	237.5(367)	1.3499	28.859	1856	2.337	4336	1.940	0.44327	27.007	0.2379	4133	29.867	153.0		
COMBUSTOR	0	25	18 4														
53.313	109.330	2805	612.1(739)	1.2997	28.859	2506											
53.313	7.619	1460	231.9(361)	1.3511	28.859	1843	2.366	4362	1.940	0.42515	27.007	0.2480	4145	28.817	153.5		
COMBUSTOR	0	26	19 4														
54.063	107.049	2800	610.6(738)	1.2999	28.859	2504											
54.063	6.996	1432	224.8(354)	1.3527	28.859	1827	2.405	4394	1.941	0.40077	27.007	0.2631	4160	27.365	154.0		
COMBUSTOR	0	27	20 4														
54.823	104.422	2795	609.2(736)	1.3000	28.859	2502											
54.823	6.476	1410	218.9(348)	1.3539	28.859	1814	2.436	4419	1.942	0.37898	27.007	0.2782	4171	26.026	154.4		
COMBUSTOR	0	28	21 5														
55.760	100.968	2790	607.6(735)	1.3002	28.859	2500											
55.760	5.953	1389	213.3(343)	1.3552	28.859	1801	2.467	4442	1.944	0.35556	27.007	0.2966	4181	24.546	154.8		
COMBUSTOR	0	29	22 4														
56.248	87.347	2788	607.0(734)	1.3003	28.859	2499											
56.248	4.589	1346	202.1(331)	1.3578	28.859	1775	2.536	4501	1.954	0.28657	27.007	0.3679	4211	20.045	155.9		
COMBUSTOR	0	30	23 5														
56.303	87.261	2788	606.9(734)	1.3003	28.859	2499											
56.303	4.573	1345	201.8(331)	1.3579	28.859	1774	2.538	4502	1.954	0.28581	27.007	0.3689	4211	19.997	155.9		
COMBUSTOR	0	31	24 5														
56.443	86.928	2787	606.7(734)	1.3003	28.859	2499											
56.443	4.528	1343	201.2(330)	1.3580	28.859	1772	2.542	4505	1.954	0.28371	27.007	0.3717	4212	19.862	156.0		
COMBUSTOR	0	32	25 4														
56.523	88.112	2787	606.6(734)	1.3003	28.859	2499											
56.523	4.575	1341	200.8(330)	1.3581	28.859	1772	2.544	4506	1.953	0.28704	27.007	0.3673	4213	20.101	156.0		
COMBUSTOR	0	33	26 5														
56.803	88.266	2786	606.3(733)	1.3003	28.859	2498											
56.803	4.541	1337	199.8(329)	1.3583	28.859	1769	2.549	4510	1.953	0.28594	27.007	0.3688	4214	20.040	156.1		
COMBUSTOR	0	34	27 4														
57.029	88.472	2785	606.0(733)	1.3004	28.859	2498											
57.029	4.520	1335	199.1(328)	1.3585	28.859	1767	2.553	4513	1.952	0.28545	27.007	0.3694	4216	20.018	156.1		
COMBUSTOR	0	35	28 4														
57.753	88.227	2782	605.1(732)	1.3005	28.859	2496											
57.753	4.410	1325	196.6(326)	1.3591	28.859	1762	2.567	4521	1.952	0.28097	27.007	0.3753	4219	19.741	156.2		
COMBUSTOR	0	36	29 3														
58.773	88.483	2778	604.0(731)	1.3006	28.859	2495											
58.773	4.351	1317	194.6(324)	1.3595	28.859	1757	2.576	4526	1.952	0.27918	27.007	0.3777	4220	19.637	156.3		
COMBUSTOR	0	37	30 5														
60.783	89.518	2772	602.3(729)	1.3008	28.859	2492											
60.783	4.555	1326	196.9(326)	1.3590	28.859	1762											
							2.556	4504	1.950	0.28890	27.007	0.3650	4206	20.221	155.8		

READING = 0069 BLOCK = 71 TIME = 177.000 MACH 6.0 PI = 749.749 TT = 3010.1

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	A	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31	5														
62.203	96.222	2769	601.3	(728)	1.3009	28.859	2491											
62.203	4.728	1335	199.1	(328)	1.3585	28.859	1768	2.538	4486	1.949	0.29673	27.007	0.3553	4196	20.687	155.4		
COMBUSTOR	0	39	32	5														
64.667	82.924	2763	599.5	(727)	1.3011	28.859	2489											
64.667	4.557	1348	202.6	(332)	1.3577	28.859	1776	2.509	4456	1.955	0.28126	27.007	0.3749	4178	19.479	154.7		
COMBUSTOR	0.	40	33	3														
65.043	76.765	2762	599.2	(726)	1.3011	28.859	2488											
65.043	4.245	1350	203.1	(332)	1.3576	28.859	1777	2.506	4452	1.960	0.26148	27.007	0.4032	4176	18.092	154.6		
NOZZLE AE		41	34	3														
87.279	76.765	2762	599.2	(726)	1.3011	28.859	2488											
87.279	0.384	697	38.9	(168)	1.3945	28.859	1294	4.091	5295	1.960	0.05443	27.007	1.9371	4635	4.479	171.6		
NOZZLE PO		42	35	3														
87.279	76.765	2762	599.2	(726)	1.3011	28.859	2488											
87.279	0.395	703	40.3	(170)	1.3943	28.859	1299	4.070	5288	1.960	0.05548	27.007	1.9005	4631	4.560	171.5		
FICTIVE COMBUSTR		62	55	0														
65.043	280.338	2762	599.2	(726)	1.3011	28.859	2488											
65.043	0.395	486	-12.2	(117)	1.3991	28.859	1083	5.109	5531	1.871	0.08387	27.007	1.2572	4770	7.209	176.6		
FICTIVE NOZZLE		63	56	0														
87.279	194.614	2734	590.9	(718)	1.3020	28.859	2476											
87.279	0.246	466	-17.1	(112)	1.3991	28.859	1060	5.206	5516	1.893	0.05443	27.007	1.9371	4752	4.666	176.0		

READING = 0069 BLOCK = 71 TTWF = 177.004 MACH 6.0 PT = 749.749 TT = 3010.1 PAGE 4

XARS	P-IB	P-OB	PDA	QOX	W-IB	W-OB	CA-ALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.080E 00	0.000	-4.421E-01	0.000	0.000	0.000	2.470E-02	2.735E 00	1.440E-03	0.000	0.000
1.836E 01	1.080E 00	0.000	-3.595E 01	0.000	0.000	0.000	1.638E 02	2.735E 00	1.440E-03	0.000	0.000
3.070E 01	2.300E 00	0.000	-1.730E 02	0.000	0.000	0.000	5.053E 02	5.824E 00	3.068E-03	0.000	0.000
3.508E 01	3.934E 00	0.000	-3.750E 02	0.000	0.000	0.000	6.804E 02	9.963E 00	5.248E-03	0.000	0.000
3.518E 01	3.948E 00	5.828E 00	-4.409E 02	0.000	0.000	0.000	6.849E 02	9.999E 00	5.266E-03	1.476E 01	7.773E-03
3.519E 01	3.949E 00	5.792E 00	-4.410E 02	0.000	0.000	0.000	6.851E 02	1.000E 01	5.267E-03	1.467E 01	7.726E-03
3.555E 01	4.000E 00	3.643E 00	-4.491E 02	0.000	0.000	0.000	7.215E 02	1.013E 01	5.335E-03	9.225E 00	4.859E-03
3.595E 01	3.964E 00	1.850E 00	-4.639E 02	-1.309E 02	-1.309E 02	0.000	7.523E 02	1.004E 01	5.288E-03	4.685E 00	2.467E-03
3.606E 01	3.940E 00	2.740E 00	-4.752E 02	-1.324E 02	-1.324E 02	0.000	7.736E 02	9.977E 00	5.255E-03	6.939E 00	3.655E-03
3.648E 01	4.246E 00	4.545E 00	-4.950E 02	-1.357E 02	-1.357E 02	0.000	8.174E 02	1.075E 01	5.663E-03	1.151E 01	6.063E-03
3.701E 01	4.570E 00	6.823E 00	-5.210E 02	-1.605E 02	-1.400E 02	-2.051E 01	8.731E 02	1.157E 01	6.095E-03	1.728E 01	9.101E-03
3.731E 01	4.350E 00	8.125E 00	-5.334E 02	-1.696E 02	-1.425E 02	-2.708E 01	9.057E 02	1.102E 01	5.802E-03	2.058E 01	1.084E-02
3.803E 01	3.830E 00	1.361E 01	-5.481E 02	-1.915E 02	-1.490E 02	-4.229E 01	9.841E 02	9.699E 00	5.108E-03	3.446E 01	1.815E-02
3.833E 01	5.369E 00	1.592E 01	-5.459E 02	-2.010E 02	-1.523E 02	-4.866E 01	1.018E 03	1.360E 01	7.161E-03	4.033E 01	2.124E-02
3.875E 01	7.489E 00	1.550E 01	-5.466E 02	-2.160E 02	-1.586E 02	-5.739E 01	1.065E 03	1.896E 01	9.988E-03	3.926E 01	2.068E-02
3.880E 01	7.757E 00	1.545E 01	-5.468E 02	-2.180E 02	-1.595E 02	-5.850E 01	1.071E 03	1.964E 01	1.035E-02	3.912E 01	2.061E-02
3.901E 01	8.810E 00	1.568E 01	-5.467E 02	-2.264E 02	-1.636E 02	-6.281E 01	1.095E 03	2.231E 01	1.175E-02	3.970E 01	2.091E-02
3.931E 01	1.332E 01	1.601E 01	-5.514E 02	-2.397E 02	-1.706E 02	-6.909E 01	1.129E 03	3.374E 01	1.777E-02	4.055E 01	2.136E-02
3.950E 01	1.611E 01	1.168E 01	-5.597E 02	-2.486E 02	-1.756E 02	-7.293E 01	1.151E 03	4.080E 01	2.149E-02	2.958E 01	1.558E-02
3.980E 01	1.696E 01	4.675E 00	-5.828E 02	-2.640E 02	-1.849E 02	-7.906E 01	1.186E 03	4.294E 01	2.262E-02	1.184E 01	6.235E-03
4.000E 01	1.751E 01	4.491E 00	-6.012E 02	-2.748E 02	-1.918E 02	-8.298E 01	1.209E 03	4.434E 01	2.335E-02	1.137E 01	5.989E-03
4.040E 01	2.050E 01	4.116E 00	-6.411E 02	-2.983E 02	-2.070E 02	-9.129E 01	1.256E 03	5.191E 01	2.734E-02	1.042E 01	5.490E-03
4.041E 01	2.057E 01	4.107E 00	-6.420E 02	-2.989E 02	-2.074E 02	-9.151E 01	1.258E 03	5.210E 01	2.744E-02	1.040E 01	5.478E-03
4.130E 01	2.721E 01	3.276E 00	-7.461E 02	-3.705E 02	-2.454E 02	-1.251E 02	1.363E 03	6.891E 01	3.630E-02	8.297E 00	4.370E-03
4.136E 01	2.770E 01	3.216E 00	-7.544E 02	-3.771E 02	-2.484E 02	-1.287E 02	1.370E 03	7.014E 01	3.695E-02	8.143E 00	4.289E-03
4.150E 01	2.872E 01	3.728E 00	-7.721E 02	-3.914E 02	-2.549E 02	-1.365E 02	1.387E 03	7.274E 01	3.831E-02	9.442E 00	4.973E-03
4.246E 01	9.937E 00	7.316E 00	-8.316E 02	-5.112E 02	-3.031E 02	-2.081E 02	1.502E 03	2.517E 01	1.325E-02	1.853E 01	9.761E-03
4.408E 01	1.506E 01	1.339E 01	-8.351E 02	-7.553E 02	-3.848E 02	-3.705E 02	1.698E 03	3.814E 01	2.009E-02	3.390E 01	1.786E-02
4.431E 01	1.578E 01	1.303E 01	-8.363E 02	-7.907E 02	-3.957E 02	-3.950E 02	1.726E 03	3.996E 01	2.104E-02	3.299E 01	1.738E-02
4.480E 01	1.732E 01	1.225E 01	-8.424E 02	-8.628E 02	-4.189E 02	-4.439E 02	1.785E 03	4.386E 01	2.310E-02	3.103E 01	1.634E-02
4.480F 01	1.732E 01	1.225E 01	-8.423E 02	-8.631E 02	-4.190E 02	-4.441F 02	1.785E 03	4.387E 01	2.311E-02	3.102E 01	1.634E-02
4.626E 01	1.646E 01	9.935E 00	-8.510E 02	-1.055E 03	-4.847E 02	-5.706E 02	1.965E 03	4.169E 01	2.196E-02	2.516E 01	1.325E-02
4.731F 01	1.584E 01	8.270F 00	-8.500E 02	-1.182E 03	-5.287E 02	-6.534F 02	2.095E 03	4.012E 01	2.113E-02	2.094F 01	1.103E-02
4.732F 01	1.576E 01	8.250E 00	-8.497E 02	-1.184E 03	-5.292E 02	-6.544E 02	2.096E 03	3.992E 01	2.102E-02	2.089E 01	1.100E-02
4.811E 01	1.080E 01	9.499E 00	-8.351E 02	-1.273E 03	-5.604E 02	-7.124E 02	2.195E 03	2.735E 01	1.440E-02	2.405E 01	1.267E-02
4.877E 01	1.055E 01	1.055E 01	-8.038E 02	-1.340E 03	-5.855E 02	-7.547F 02	2.278E 03	2.672E 01	1.407E-02	2.672E 01	1.407E-02
4.930E 01	1.139E 01	1.139E 01	-7.735E 02	-1.389E 03	-6.049E 02	-7.841E 02	2.344E 03	2.885E 01	1.519E-02	2.885E 01	1.519E-02
5.071F 01	4.650E 00	4.650E 00	-7.142E 02	-1.501E 03	-6.531E 02	-8.480F 02	2.522E 03	1.178E 01	6.202E-03	1.178E 01	6.202E-03
5.281E 01	6.562E 00	6.562F 00	-6.525E 02	-1.638E 03	-7.162E 02	-9.222E 02	2.708E 03	1.662E 01	8.753E-03	1.662E 01	8.753E-03
5.331E 01	5.857E 00	5.857E 00	-6.363E 02	-1.668E 03	-7.297E 02	-9.379E 02	2.852E 03	1.483E 01	7.813E-03	1.483E 01	7.813E-03
5.406E 01	4.904E 00	4.904E 00	-6.155E 02	-1.709E 03	-7.489E 02	-9.597E 02	2.947E 03	1.242E 01	6.541E-03	1.242E 01	6.541E-03
5.482E 01	3.937E 00	3.937E 00	-5.984E 02	-1.746E 03	-7.669E 02	-9.795E 02	3.045E 03	9.971E 00	5.252E-03	9.971E 00	5.252E-03
5.576E 01	3.334E 00	3.334E 00	-5.813E 02	-1.788E 03	-7.873E 02	-1.000E 03	3.165E 03	8.443E 00	4.447E-03	8.443E 00	4.447E-03
5.625F 01	3.020E 00	3.020F 00	-5.494E 02	-1.806E 03	-7.962E 02	-1.010F 03	3.209E 03	7.647F 00	4.028E-03	7.647F 00	4.028E-03
5.630F 01	1.462E 00	2.984E 00	-5.485E 02	-1.808E 03	-7.970E 02	-1.011F 03	3.216E 03	3.704F 00	1.951E-03	7.558E 00	3.981E-03
5.644E 01	1.462E 00	2.894E 00	-5.466E 02	-1.812E 03	-7.991E 02	-1.013E 03	3.234E 03	3.704E 00	1.951E-03	7.329E 00	3.860E-03
5.682E 01	2.843E 00	2.843E 00	-5.455E 02	-1.815E 03	-8.003E 02	-1.015E 03	3.245E 03	7.199E 00	3.792E-03	7.199E 00	3.792E-03
5.680E 01	2.662E 00	2.662E 00	-5.419E 02	-1.824F 03	-8.044E 02	-1.020F 03	3.280E 03	6.742E 00	3.551E-03	6.742E 00	3.551E-03
5.703F 01	2.861E 00	2.861F 00	-5.392E 02	-1.832F 03	-8.075E 02	-1.024E 03	3.309E 03	7.244F 00	3.815E-03	7.244F 00	3.815E-03
5.775E 01	3.495E 00	3.495F 00	-5.306E 02	-1.855E 03	-8.167E 02	-1.039E 03	3.402E 03	8.850F 00	4.662E-03	8.850E 00	4.662E-03
5.877F 01	3.712E 00	3.712F 00	-5.222E 02	-1.886F 03	-8.274E 02	-1.059F 03	3.532E 03	9.401F 00	4.952E-03	9.401E 00	4.952E-03
6.078F 01	1.500E 00	1.500E 00	-5.216E 02	-1.933E 03	-8.428E 02	-1.090F 03	3.790E 03	3.798F 00	2.001E-03	3.798F 00	2.001E-03
6.220E 01	1.631E 00	1.631F 00	-5.216E 02	-1.958F 03	-8.521F 02	-1.106F 03	3.972E 03	4.131E 00	2.176E-03	4.131E 00	2.176E-03
6.467E 01	2.706E 00	2.706F 00	-5.216E 02	-2.007F 03	-8.722E 02	-1.135F 03	4.289E 03	6.853E 00	3.610E-03	6.853F 00	3.610E-03
6.504F 01	4.275E 00	2.870F 00	-5.216E 02	-2.016F 03	-8.757E 02	-1.140F 03	4.337E 03	1.083F 01	5.702E-03	7.269E 00	3.828E-03
6.508F 01	4.275E 00	2.888E 00	-5.216E 02	-2.017E 03	-8.761E 02	-1.141F 03	4.342E 03	1.083E 01	5.702F-03	7.313E 00	3.852E-03

READING = 0069 BLOCK = 71 TIME = 177.004 MACH 6.0 PT = 749.749 TT = 3010.1 PAGE 5

XABS	P-IB	P-OB	PDA	QDX	Q-IB	Q-OB	CA/ALL	P-IB/PBO	P-IB/PIO	P-OB/PBO	P-OB/PIO
6.528E 01	4.001E 00	2.975E 00	-5.216E 02	-2.021E 03	-8.780E 02	-1.143E 03	4.368E 03	1.013E 01	5.337E-03	7.534E 00	3.968E-03
6.694E 01	1.730E 00	6.280E 00	-4.777E 02	-2.056E 03	-8.910E 02	-1.165E 03	4.583E 03	4.381E 00	2.307E-03	1.590E 01	8.376E-03
6.761E 01	1.528E 00	4.147E 00	-4.068E 02	-2.070E 03	-8.951E 02	-1.175E 03	4.665E 03	3.868E 00	2.037E-03	1.050E 01	5.532E-03
6.838E 01	1.295E 00	3.043E 00	-3.437E 02	-2.087E 03	-8.991E 02	-1.188E 03	4.760E 03	3.279E 00	1.727E-03	7.706E 00	4.059E-03
6.910E 01	1.384E 00	2.010E 00	-2.953E 02	-2.103E 03	-9.023E 02	-1.201E 03	4.848E 03	3.506E 00	1.846E-03	5.090E 00	2.681E-03
6.971E 01	1.460E 00	1.973E 00	-2.587E 02	-2.117E 03	-9.046E 02	-1.212E 03	4.922E 03	3.697E 00	1.947E-03	4.996E 00	2.631E-03
7.066E 01	1.302E 00	1.915E 00	-2.065E 02	-2.138E 03	-9.077E 02	-1.231E 03	5.036E 03	3.296E 00	1.736E-03	4.849E 00	2.554E-03
7.109E 01	1.230E 00	1.727E 00	-1.850E 02	-2.147E 03	-9.090E 02	-1.238E 03	5.088E 03	3.115E 00	1.641E-03	4.374E 00	2.304E-03
7.262E 01	1.216E 00	1.060E 00	-1.227E 02	-2.173E 03	-9.129E 02	-1.260E 03	5.273E 03	3.080E 00	1.622E-03	2.684E 00	1.414E-03
7.277E 01	1.215E 00	1.097E 00	-1.176E 02	-2.175E 03	-9.133E 02	-1.262E 03	5.290E 03	3.077E 00	1.621E-03	2.777E 00	1.463E-03
7.352E 01	1.116E 00	1.280E 00	-7.749E 01	-2.187E 03	-9.150E 02	-1.272E 03	5.374E 03	2.826E 00	1.488E-03	3.241E 00	1.707E-03
7.353E 01	1.115E 00	1.281E 00	-7.505E 01	-2.187E 03	-9.150E 02	-1.272E 03	5.375E 03	2.824E 00	1.488E-03	3.244E 00	1.709E-03
7.485E 01	9.400E-01	0.000	-5.334E 01	-2.212E 03	-9.178E 02	-1.294E 03	5.427E 03	2.380E 00	1.254E-03	0.000	0.000
7.770E 01	9.600E-01	0.000	-1.536E 01	-2.217E 03	-9.230E 02	-1.294E 03	5.525E 03	2.431E 00	1.280E-03	0.000	0.000
8.160E 01	1.245E 00	0.000	3.177E 01	-2.223E 03	-9.290E 02	-1.294F 03	5.630E 03	3.153E 00	1.661E-03	0.000	0.000
8.441F 01	1.175E 00	0.000	5.865E 01	-2.229E 03	-9.349E 02	-1.294E 03	5.684E 03	2.975E 00	1.567E-03	0.000	0.000
8.727E 01	1.290E 00	0.000	8.839E 01	-2.240E 03	-9.456E 02	-1.294E 03	5.707E 03	3.267E 00	1.721E-03	0.000	0.000
8.728E 01	1.290E 00	0.000	8.840E 01	-2.240E 03	-9.456E 02	-1.294F 03	5.707E 03	3.267E 00	1.721E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.165E 02	1.165E 02	2.247E-03	4.462E-02
4.041E 01	1.792E-01	1.167E 02	2.248E-03	4.465E-02
4.130E 01	1.598E 01	1.326E 02	2.373E-03	4.798E-02
4.136E 01	1.180E 00	1.338E 02	2.382E-03	4.824E-02
4.150E 01	2.494E 00	1.363E 02	2.402E-03	4.880E-02
4.246E 01	1.736E 01	1.537E 02	2.462E-03	4.999E-02
4.40AE 01	2.879E 01	1.825E 02	2.467E-03	4.837E-02
4.431E 01	3.950E 00	1.864E 02	2.470E-03	4.834E-02
4.480E 01	8.494E 00	1.949E 02	2.481E-03	4.836E-02
4.480E 01	3.920E-02	1.949E 02	2.481E-03	4.835E-02
4.626E 01	2.474E 01	2.197E 02	2.502E-03	4.593E-02
4.731E 01	1.675E 01	2.364E 02	2.507E-03	4.280E-02
4.732E 01	1.835E-01	2.366E 02	2.506E-03	4.273E-02
4.811E 01	1.174E 01	2.484E 02	2.499E-03	3.967E-02
4.877E 01	9.210E 00	2.576E 02	2.479E-03	3.601E-02
4.930E 01	6.864E 00	2.644E 02	2.445E-03	3.316E-02
5.071E 01	1.642E 01	2.809E 02	2.390E-03	2.740E-02
5.281E 01	2.059E 01	3.014E 02	2.331E-03	2.169E-02
5.331E 01	4.344E 00	3.058E 02	2.315E-03	2.061E-02
5.406E 01	6.203E 00	3.120E 02	2.294E-03	1.919E-02
5.482E 01	5.941E 00	3.179E 02	2.277E-03	1.796E-02
5.576E 01	6.911E 00	3.248E 02	2.261E-03	1.669E-02
5.625E 01	2.205E 00	3.271E 02	2.217E-03	1.312E-02
5.630E 01	3.127E-01	3.274E 02	2.216E-03	1.308E-02
5.644E 01	7.847E-01	3.281E 02	2.215E-03	1.297E-02
5.652E 01	4.523E-01	3.286E 02	2.208E-03	1.308E-02
5.680E 01	1.579E 00	3.302E 02	2.202E-03	1.299E-02
5.703E 01	1.270E 00	3.315E 02	2.197E-03	1.293E-02
5.775E 01	4.036E 00	3.355E 02	2.186E-03	1.265E-02
5.877E 01	5.614E 00	3.411E 02	2.177E-03	1.250E-02
6.078E 01	1.119E 01	3.523E 02	2.179E-03	1.295E-02
6.220E 01	8.119E 00	3.604E 02	2.179E-03	1.332E-02
6.467E 01	1.393E 01	3.743E 02	2.210E-03	1.283E-02
6.504E 01	2.015E 00	3.764E 02	2.236E-03	1.208E-02
6.508E 01	1.987E-01	3.766E 02	2.227E-03	1.075E-02
6.528E 01	9.399E-01	3.775E 02	2.221E-03	1.054E-02
6.694E 01	8.164E 00	3.857E 02	2.238E-03	1.143E-02
6.761E 01	2.904E 00	3.886E 02	2.171E-03	8.975E-03
6.838E 01	2.778E 00	3.913E 02	2.120E-03	7.310E-03
6.910E 01	2.181E 00	3.935E 02	2.074E-03	6.056E-03
6.971E 01	1.696E 00	3.952E 02	2.073E-03	6.102E-03
7.066E 01	2.572E 00	3.978E 02	2.058E-03	5.796E-03
7.109E 01	1.112E 00	3.989E 02	2.043E-03	5.433E-03
7.262E 01	3.515E 00	4.024E 02	1.995E-03	4.438E-03
7.277E 01	3.015E-01	4.027E 02	1.996E-03	4.490E-03
7.352E 01	1.503E 00	4.042E 02	1.999E-03	4.607E-03
7.353E 01	2.914E-03	4.042E 02	1.999E-03	4.608E-03
7.485E 01	8.602E-01	4.051E 02	1.954E-03	3.816E-03
7.770E 01	1.500E 00	4.066E 02	1.946E-03	3.857E-03
8.160E 01	1.759E 00	4.083E 02	1.977E-03	4.672E-03
8.441E 01	9.711E-01	4.093E 02	1.958E-03	4.448E-03
8.727E 01	4.068E-01	4.097E 02	1.965E-03	4.755E-03
8.728E 01	0.000	4.097E 02	1.965E-03	4.756E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=335.	(LBF)
MEASURED THRUST	=432.	(LBF)
CALCULATED SPECIFIC IMPULSE	=335.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=432.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.1323	
MEASURED THRUST COEFFICIENT	=.1707	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	0.	(LBF)
NET THRUST	0.	(LBF)
SPECIFIC IMPULSE	0.	(LBF=SEC/LBM)
THRUST COEFFICIENT	0.0000	

MOMENTUM AND FORCES

INLET FRICTION DRAG	116.5	(LBF)
INLET MOMENTUM CHANGE	=757.6	(LBF)
COMBUSTOR FRICTION DRAG	259.9	(LBF)
COMBUSTOR STRUT DRAG	13.50	(LBF)
COMBUSTOR MOMENTUM CHANGE	=154.	(LBF)
NOZZLE FRICTION DRAG	33.37	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	577.	(LBF)
NOZZLE PRESSURE INTEGRAL	610.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	=1075.	(LBF)
TOTAL STRUT DRAG	13.50	(LBF)
CAVITY FORCE	=1130.	(LBF)
CALCULATED LOAD CELL FORCE	=2540.	(LBF)
MEASURED LOAD CELL FORCE	=2637.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3029	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.187	(IN)
NOZZLE SHROUD TRAILING EDGE	73.527	(IN)
NOZZLE PLUG TRAILING EDGE	87.279	(IN)
STRUT LEADING EDGE	56.443	(IN)
STRUT TRAILING EDGE	65.043	(IN)
COMBUSTOR EXIT	65.043	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9846	
ADDITIVE DRAG COEFFICIENT	0.0006	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1623	
DELTA PT2	0.1204	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.3759	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1646	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8892	
INLET PROCESS EFFICIENCY = SUBSONIC	0.9035	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9418	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8936	
ENTHALPY AT P0 = SUPERSONIC	=0.86	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	33.07	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0000
EQUIVALENCE RATIO	0.000
COMBUSTOR EFFICIENCY	0.000
TOTAL PRESSURE RATIO	0.2738
COMBUSTOR EFFECTIVENESS	0.6853

INJECTOR DISCHARGE COEFFICIENTS

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	1.0253
NOZZLE COEFFICIENT = CT	0.9838
PROCESS EFFICIENCY	1.1955
KINETIC ENERGY EFFICIENCY	1.0477

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.288	
1C	44.300	
2A	48.763	
2C	46.250	
3A	54.053	
3B	56.238	
4	44.788	

Reading 69

t = 198.60 sec.

READING = 0069 BLOCK = 95 TIME = 198.604 MACH 6.0 P1 = 748.750 T1 = 2935.6 PAGE 1

RAMJET PERFORMANCE

3-3-75

SUMMARY REPORT

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	W	A/AC	THRTH	F	TVAC	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	748.750	2936	651.3	(777)	1.2956	28.860	2560											
0.000	0.383	393	-34.7	(95)	1.3986	28.859	973	6.020	5859	1.821	0.10671	27.053	0.9898	5023	9.716	185.7		
SPIKE TIP NS		2	0	5														
0.600	18.087	2936	651.3	(777)	1.2955	28.859	2560											
0.600	16.340	2869	631.2	(758)	1.2977	28.859	2533	0.396	1002	2.078	0.10671	27.053	0.9898	4990	1.662	184.5		
WIND TUNNEL		3	0	0														
0.000	748.750	2936	651.3	(777)	1.2956	28.860	2560											
0.000	0.379	392	-35.0	(94)	1.3986	28.859	972	6.031	5860	1.821	0.10584	26.831	0.9898	4983	9.638	185.7		
SPIKE TIP NS		4	0	0														
0.600	18.087	2936	651.3	(777)	1.2955	28.859	2560											
0.600	16.392	2870	631.6	(758)	1.2976	28.859	2533	0.392	992	2.078	0.10584	26.831	0.9898	4983	1.632	185.7		
INLET THROAT		5	0	4														
40.400	258.444	2889	637.1	(764)	1.2971	28.859	2541											
40.400	16.781	1481	237.7	(367)	1.3498	28.859	1856	2.409	4471	1.890	0.94576	27.053	0.1117	4239	65.709	156.7		
INLET UPNRSK		6	0	3														
40.400	258.444	2889	637.1	(764)	1.2971	28.859	2541											
40.400	14.380	1423	222.3	(352)	1.3532	28.859	1821	2.501	4556	1.890	0.85978	27.053	0.1228	4283	60.878	158.3		
INLET DNNRSK		7	0	4														
40.400	120.543	2889	637.2	(764)	1.2971	28.859	2541											
40.400	102.812	2785	606.1	(733)	1.3004	28.859	2498	0.499	1247	1.942	0.85978	27.053	0.1228	4283	16.662	158.3		
COMBUSTOR	0	8	1	21														
40.410	216.664	2853	638.9	(784)	1.2993	27.679	2580											
40.410	12.515	1414	216.2	(364)	1.3549	27.679	1855	2.479	4599	1.967	0.94880	27.143	0.1117	4238	67.812	156.1	0.11	0.07
COMBUSTOR	0	9	2	21														
41.286	165.554	2790	641.9	(794)	1.3028	26.577	2607											
41.286	15.674	1564	266.8	(421)	1.3481	26.577	1986	2.182	4332	2.044	0.95410	27.232	0.1114	4114	64.239	151.1	0.22	0.04
COMBUSTOR	0	10	3	21														
41.296	172.825	2750	641.9	(782)	1.3047	26.535	2593											
41.296	15.710	1522	267.3	(410)	1.3507	26.535	1962	2.206	4330	2.036	0.95441	27.232	0.1114	4113	64.219	151.0	0.22	0.01
COMBUSTOR	0	11	4	21														
41.361	171.583	2743	641.7	(780)	1.3050	26.529	2590											
41.361	15.945	1526	270.4	(411)	1.3505	26.529	1965	2.193	4310	2.036	0.95447	27.232	0.1114	4103	63.932	150.7	0.22	0.00
COMBUSTOR	0	12	5	21														
41.500	167.679	2741	641.2	(780)	1.3051	26.528	2589											
41.500	16.924	1558	279.9	(420)	1.3489	26.528	1985	2.143	4253	2.038	0.95504	27.232	0.1113	4082	63.116	149.9	0.22	0.00
COMBUSTOR	0	13	6	21														
42.460	136.666	2729	637.5	(776)	1.3055	26.528	2584											
42.460	13.549	1543	275.6	(416)	1.3496	26.528	1976	2.154	4255	2.052	0.94611	27.232	0.1124	3992	62.563	146.6	0.22	0.00
COMBUSTOR	0	14	7	21														
44.081	134.750	2705	629.0	(768)	1.3062	26.530	2573											
44.081	25.343	1800	350.2	(491)	1.3377	26.530	2124	1.758	3734	2.050	0.91426	27.232	0.1163	3916	53.057	143.8	0.22	0.00
COMBUSTOR	0	15	8	3														
44.310	131.246	2715	627.6	(771)	1.3056	26.546	2577											
44.310	26.723	1844	358.7	(504)	1.3358	26.545	2148	1.708	3667	2.053	0.91292	27.232	0.1165	3901	52.032	143.3	0.22	0.02
COMBUSTOR	0	16	9	3														
44.796	121.129	2774	624.5	(789)	1.3028	26.618	2598											
44.796	29.650	1978	376.7	(543)	1.3299	26.618	2216	1.589	3521	2.064	0.90908	27.232	0.1170	3868	49.738	142.0	0.22	0.08
COMBUSTOR	0	17	10	2														
44.800	121.018	2775	624.4	(789)	1.3028	26.619	2599											
44.800	29.674	1979	376.9	(544)	1.3298	26.619	2217	1.587	3519	2.064	0.90888	27.232	0.1170	3868	49.708	142.0	0.22	0.08
COMBUSTOR	0	18	11	3														
46.260	115.174	2721	614.9	(773)	1.3048	26.594	2576											
46.260	26.986	1916	365.5	(525)	1.3325	26.594	2185	1.617	3532	2.062	0.85612	27.232	0.1242	3848	46.990	141.3	0.22	0.06

	P	T	H	GAMMA	MOLWT	GONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 4														
47.310	110.472	2802	608.1(796)	1.3009	26.701	2605											
47.310	25.057	1963	347.3(538)	1.3296	26.701	2204	1.639	3612	2.072	0.79678	27.232	0.1334	3914	44.731	143.7	0.22	0.15
COMBUSTOR	0	20	13 2														
47.321	110.219	2806	608.1(798)	1.3007	26.706	2607											
47.321	25.125	1969	347.6(540)	1.3293	26.706	2207	1.636	3610	2.073	0.79616	27.232	0.1335	3915	44.666	143.8	0.22	0.15
COMBUSTOR	0	21	14 4														
48.110	99.643	2995	603.3(855)	1.2918	26.926	2673											
48.110	26.175	2190	349.2(604)	1.3188	26.926	2310	1.544	3566	2.095	0.74252	27.232	0.1432	3978	41.149	146.1	0.22	0.34
COMBUSTOR	0	22	15 4														
48.771	102.611	2921	599.7(832)	1.2951	26.857	2646											
48.771	20.696	1998	311.1(546)	1.3266	26.858	2215	1.716	3800	2.086	0.68417	27.232	0.1554	4040	40.399	148.3	0.22	0.28
COMBUSTOR	0	23	16 3														
49.301	106.199	2859	596.9(813)	1.2978	26.800	2624											
49.301	17.204	1847	283.3(502)	1.3330	26.800	2137	1.853	3961	2.079	0.63986	27.232	0.1662	4085	39.391	150.0	0.22	0.23
COMBUSTOR	0	24	17 4														
50.711	95.351	2975	590.5(848)	1.2922	26.947	2663											
50.711	14.587	1905	257.1(518)	1.3292	26.947	2162	1.890	4085	2.095	0.54834	27.232	0.1950	4186	34.619	153.7	0.22	0.36
COMBUSTOR	0	25	18 5														
52.811	114.178	2769	583.0(785)	1.3014	26.749	2588											
52.811	8.437	1458	185.0(389)	1.3522	26.749	1914	2.331	4462	2.065	0.44697	27.232	0.2379	4291	30.997	157.6	0.22	0.19
COMBUSTOR	0	26	19 4														
53.311	123.700	2704	581.4(766)	1.3042	26.686	2563											
53.311	7.317	1338	169.7(356)	1.3596	26.686	1841	2.466	4539	2.053	0.42870	27.232	0.2480	4307	30.242	158.2	0.22	0.14
COMBUSTOR	0	27	20 4														
54.061	108.961	2786	579.3(790)	1.3005	26.780	2593											
54.061	7.408	1438	170.1(383)	1.3530	26.780	1900	2.381	4525	2.069	0.40411	27.232	0.2631	4329	28.417	159.0	0.22	0.22
COMBUSTOR	0	28	21 4														
54.821	96.927	2869	577.3(815)	1.2966	26.876	2623											
54.821	7.500	1540	170.7(412)	1.3465	26.877	1958	2.303	4510	2.084	0.38215	27.232	0.2782	4352	26.786	159.8	0.22	0.30
COMBUSTOR	0	29	22 3														
55.760	97.613	2853	575.0(810)	1.2972	26.867	2617											
55.760	6.682	1482	157.1(395)	1.3498	26.867	1924	2.377	4573	2.082	0.35848	27.232	0.2966	4378	25.476	160.8	0.22	0.29
COMBUSTOR	0	30	23 4														
56.246	68.984	3049	573.9(869)	1.2881	27.084	2685											
56.246	6.259	1722	162.7(462)	1.3354	27.085	2055	2.208	4536	2.122	0.28691	27.232	0.3680	4429	20.366	162.6	0.22	0.47
COMBUSTOR	0	31	24 6														
56.301	108.504	2719	573.8(770)	1.3033	26.728	2568											
56.301	4.212	1204	120.1(318)	1.3672	26.728	1750	2.722	4764	2.063	0.28815	27.232	0.3690	4431	21.335	162.7	0.22	0.17
COMBUSTOR	0	32	25 2														
56.441	108.982	2718	573.5(770)	1.3033	26.727	2567											
56.441	4.151	1197	118.5(316)	1.3676	26.726	1745	2.734	4772	2.063	0.28608	27.232	0.3717	4434	21.214	162.8	0.22	0.17
COMBUSTOR	0	33	26 21														
56.521	44.196	3597	573.3(1037)	1.2594	27.720	2850											
56.521	6.019	2315	155.7(632)	1.3057	27.732	2328	1.964	4571	2.181	0.28928	27.232	0.3675	4436	20.550	162.9	0.22	1.00
COMBUSTOR	0	34	27 21														
56.801	43.962	3595	572.8(1036)	1.2595	27.720	2850											
56.801	5.775	2294	149.4(626)	1.3069	27.732	2318	1.985	4603	2.181	0.28832	27.232	0.3688	4441	20.623	163.1	0.22	1.00
COMBUSTOR	0	35	28 21														
57.027	43.853	3594	572.4(1036)	1.2595	27.720	2849											
57.027	5.629	2281	145.4(622)	1.3070	27.732	2312	1.999	4622	2.181	0.28788	27.232	0.3693	4445	20.680	163.2	0.22	1.00
COMBUSTOR	0	36	29 21														
57.751	42.867	3590	571.1(1035)	1.2596	27.720	2848											
57.751	5.160	2244	134.2(611)	1.3083	27.732	2294	2.038	4676	2.182	0.28331	27.232	0.3753	4454	20.587	163.5	0.22	1.00
COMBUSTOR	0	37	30 21														
58.771	42.355	3586	569.5(1033)	1.2598	27.720	2846											
58.771	4.912	2221	127.2(604)	1.3091	27.732	2283	2.060	4704	2.183	0.28151	27.232	0.3777	4457	20.581	163.7	0.22	1.00

READING = 0069 BLOCK # 95 TIME = 198.604 MACH 6.0 PT = 748.750 TT = 2935.6

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	W	A/AC	MOMTP	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
60.781	22.048	3577	567.2(1030)	1.2583	27.718	2841											
60.781	1.575	1974	53.2(530)	1.3184	27.731	2160	2.348	5072	2.229	0.29131	27.232	0.3650	4040	22.961	163.0	0.22	1.00
COMBUSTOR	0	39	32 21														
62.201	42.581	3575	565.7(1030)	1.2603	27.721	2843											
62.201	4.894	2209	123.4(600)	1.3096	27.732	2277	2.066	4704	2.181	0.29920	27.232	0.3553	4027	21.674	162.6	0.22	1.00
COMBUSTOR	0	40	33 21														
64.665	45.598	3565	562.1(1026)	1.2609	27.721	2839											
64.665	6.739	2481	206.9(683)	1.2999	27.732	2404	1.753	4216	2.175	0.28361	27.232	0.3749	4007	18.582	161.8	0.22	1.00
COMBUSTOR	0	41	34 200														
65.041	42.295	3563	561.6(1026)	1.2608	27.721	2838											
65.041	10.456	2629	253.1(728)	1.2948	27.732	2470	1.590	3928	2.181	0.26367	27.232	0.4032	4005	16.096	161.8	0.22	1.00
COMBUSTOR REGEN		42	35 3														
65.041	42.295	3801	646.5(1103)	1.2500	27.710	2920											
65.041	9.950	2795	306.0(780)	1.2889	27.731	2542	1.624	4128	2.204	0.26367	27.232	0.4032	4521	16.914	166.0	0.22	1.00
NOZZLE AE		43	36 4														
87.277	42.295	3563	561.6(1018)	1.2608	27.721	2838											
87.277	0.718	1371	*120.2(357)	1.3486	27.732	1821	3.208	5841	2.181	0.05489	27.232	1.9371	5300	4.982	194.6	0.22	1.00
NOZZLE PO		44	37 4														
87.277	42.295	3563	561.6(1018)	1.2608	27.721	2838											
87.277	0.383	1163	*177.1(300)	1.3617	27.732	1685	3.608	6080	2.181	0.03596	27.232	2.9546	5436	3.398	199.6	0.22	1.00
NOZZLE AE REGEN		45	38 4														
87.277	42.295	3801	646.5(1103)	1.2500	27.710	2920											
87.277	0.769	1515	*79.9(397)	1.3401	27.732	1908	3.160	6029	2.204	0.05489	27.232	1.9371	5484	5.143	201.4	0.22	1.00
NOZZLE PO REGEN		46	39 4														
87.277	42.295	3801	646.5(1103)	1.2500	27.710	2920											
87.277	0.383	1666	*149.1(328)	1.3551	27.732	1754	3.597	6310	2.204	0.03428	27.232	3.1014	5645	3.362	207.3	0.22	1.00
FICTIVE COMBUSTR		66	59 0														
65.041	258.444	3567	561.6(1027)	1.2640	27.726	2844											
65.041	0.383	709	*296.4(180)	1.3867	27.732	1328	4.934	6552	2.051	0.06356	27.232	1.6727	5710	6.472	209.7	0.22	1.00
FICTIVE NOZZLE		67	60 0														
87.277	28.107	3533	551.4(1016)	1.2611	27.721	2827											
87.277	0.876	1585	*60.1(417)	1.3362	27.732	1949	2.839	5531	2.207	0.05489	27.232	1.9371	5117	4.718	187.9	0.22	1.00

YARS	P-IB	P-OB	PDA	QDX	W-IB	Q-OB	CANALL	P-IP/PSO	P-IP/PTO	P-OP/PSO	P-OP/PTO
6.981E-01	1.080E 00	0.000	-4.405E-01	0.000	0.000	0.000	2.470E-02	2.817E 00	1.442E-03	0.000	0.000
1.836E 01	1.080E 00	0.000	-3.595E 01	0.000	0.000	0.000	1.634E 02	2.817E 00	1.442E-03	0.000	0.000
3.070E 01	2.295E 00	0.000	-1.728E 02	0.000	0.000	0.000	5.053E 02	5.986E 00	3.065E-03	0.000	0.000
3.508E 01	3.946E 00	0.000	-3.750E 02	0.000	0.000	0.000	6.804E 02	1.029E 01	5.270E-03	0.000	0.000
3.518E 01	3.960E 00	5.660E 00	-4.392E 02	0.000	0.000	0.000	6.848E 02	1.033E 01	5.289E-03	1.476E 01	7.559E-03
3.518E 01	3.961E 00	5.626E 00	-4.392E 02	0.000	0.000	0.000	6.851E 02	1.033E 01	5.290E-03	1.467E 01	7.514E-03
3.555E 01	4.015E 00	3.556E 00	-4.480E 02	0.000	0.000	0.000	7.217E 02	1.044E 01	5.362E-03	9.275E 00	4.749E-03
3.585E 01	3.971E 00	1.850E 00	-4.629E 02	-2.263E 02	-2.263E 02	0.000	7.522E 02	1.036E 01	5.303E-03	4.825E 00	2.471E-03
3.606E 01	3.940E 00	2.751E 00	-4.744E 02	-2.291E 02	-2.291E 02	0.000	7.736E 02	1.028E 01	5.262E-03	7.174E 00	3.674E-03
3.648E 01	4.259E 00	4.559E 00	-4.943E 02	-2.347E 02	-2.347E 02	0.000	8.174E 02	1.111E 01	5.688E-03	1.189E 01	6.089E-03
3.701E 01	4.380E 00	6.842E 00	-5.189E 02	-2.576E 02	-2.421E 02	-1.550E 01	8.733E 02	1.142E 01	5.850E-03	1.784E 01	9.138E-03
3.731E 01	4.230E 00	8.137E 00	-5.303E 02	-2.668E 02	-2.464E 02	-2.043E 01	9.056E 02	1.103E 01	5.649E-03	2.122E 01	1.087E-02
3.803E 01	3.870E 00	8.005E 00	-5.564E 02	-2.894E 02	-2.574E 02	-3.195E 01	9.842E 02	1.009E 01	5.169E-03	2.088E 01	1.069E-02
3.833E 01	3.824E 00	7.950E 00	-5.665E 02	-2.992E 02	-2.624E 02	-3.673E 01	1.018E 03	1.415E 01	7.244E-03	2.074E 01	1.062E-02
3.875E 01	7.588E 00	1.457E 01	-5.784E 02	-3.137E 02	-2.703E 02	-4.336E 01	1.065E 03	1.979E 01	1.013E-02	3.801E 01	1.946E-02
3.880E 01	7.850E 00	1.537E 01	-5.788E 02	-3.155E 02	-2.714E 02	-4.416E 01	1.071E 03	2.048E 01	1.048E-02	4.010E 01	2.053E-02
3.901E 01	8.930E 00	1.562E 01	-5.791E 02	-3.233E 02	-2.758E 02	-4.745E 01	1.095E 03	2.329E 01	1.193E-02	4.074E 01	2.086E-02
3.931E 01	1.332E 01	1.597E 01	-5.842E 02	-3.349E 02	-2.828E 02	-5.216E 01	1.129E 03	3.474E 01	1.779E-02	4.167E 01	2.134E-02
3.950E 01	1.607E 01	1.163E 01	-5.924E 02	-3.426E 02	-2.875E 02	-5.509E 01	1.151E 03	4.193E 01	2.147E-02	3.034E 01	1.554E-02
3.980E 01	1.696E 01	4.725E 00	-6.148E 02	-3.552E 02	-2.955E 02	-5.969E 01	1.186E 03	4.423E 01	2.265E-02	1.232E 01	6.311E-03
4.000E 01	1.754E 01	4.532E 00	-6.339E 02	-3.640F 02	-3.013E 02	-6.268E 01	1.210E 03	4.575E 01	2.343E-02	1.182E 01	6.053E-03
4.040E 01	2.081E 01	4.145E 00	-6.741E 02	-3.826E 02	-3.136E 02	-6.905E 01	1.257E 03	5.429E 01	2.780E-02	1.081E 01	5.536E-03
4.041E 01	2.089E 01	4.136E 00	-6.750E 02	-3.831E 02	-3.139E 02	-6.922E 01	1.258E 03	5.450E 01	2.791E-02	1.079E 01	5.523E-03
4.129E 01	2.806E 01	3.288E 00	-7.808E 02	-4.405E 02	-3.439E 02	-9.661E 01	1.361E 03	7.319E 01	3.748E-02	8.576E 00	4.392E-03
4.130E 01	2.814E 01	3.279E 00	-7.821E 02	-4.414E 02	-3.443E 02	-9.707E 01	1.362E 03	7.340E 01	3.759E-02	8.551E 00	4.379E-03
4.136E 01	2.867E 01	3.216E 00	-7.907E 02	-4.468E 02	-3.467E 02	-1.001E 02	1.370E 03	7.479E 01	3.830E-02	8.387E 00	4.295E-03
4.150E 01	2.981E 01	4.036E 00	-8.092E 02	-4.589E 02	-3.520E 02	-1.069E 02	1.387E 03	7.776E 01	3.982E-02	1.053E 01	5.391E-03
4.246E 01	1.740E 01	9.699E 00	-8.818E 02	-5.620E 02	-3.948E 02	-1.672E 02	1.502E 03	4.538E 01	2.324E-02	2.530E 01	1.295E-02
4.408E 01	3.143E 01	1.926E 01	-9.290E 02	-7.946E 02	-5.017E 02	-2.930E 02	1.698E 03	6.197E 01	4.197E-02	5.023E 01	2.572E-02
4.431E 01	3.341E 01	2.004E 01	-9.395E 02	-8.323E 02	-5.207E 02	-3.116E 02	1.726E 03	8.714E 01	4.462E-02	5.226E 01	2.676E-02
4.448F 01	3.761E 01	2.168E 01	-9.650E 02	-9.169E 02	-5.645E 02	-3.524E 02	1.785E 03	9.811E 01	5.024E-02	5.656E 01	2.896E-02
4.460E 01	3.765E 01	2.170E 01	-9.652E 02	-9.176F 02	-5.649E 02	-3.528E 02	1.785E 03	9.820E 01	5.028E-02	5.660E 01	2.898E-02
4.626E 01	2.733E 01	2.665F 01	-9.622E 02	-1.179E 03	-6.969E 02	-4.819E 02	1.965E 03	7.127E 01	3.649E-02	6.951E 01	3.559E-02
4.731E 01	1.990E 01	3.021E 01	-8.805E 02	-1.362E 03	-7.839E 02	-5.779E 02	2.095E 03	5.190E 01	2.658E-02	7.880E 01	4.035E-02
4.732E 01	2.000E 01	3.025E 01	-8.794E 02	-1.364E 03	-7.848E 02	-5.789E 02	2.096E 03	5.217E 01	2.671E-02	7.890E 01	4.040E-02
4.811E 01	2.730E 01	2.505E 01	-8.049E 02	-1.493E 03	-8.460E 02	-6.472E 02	2.195E 03	7.121E 01	3.646E-02	6.534E 01	3.346E-02
4.877F 01	2.070E 01	2.070E 01	-7.344E 02	-1.593E 03	-8.946E 02	-6.979E 02	2.277E 03	5.398E 01	2.764E-02	5.398E 01	2.764E-02
4.930F 01	1.720E 01	1.720E 01	-6.820E 02	-1.666E 03	-9.318E 02	-7.344E 02	2.344E 03	4.487E 01	2.298E-02	4.487E 01	2.298E-02
5.071F 01	1.459E 01	1.459F 01	-5.645E 02	-1.840F 03	-1.023E 03	-8.163E 02	2.921E 03	3.805E 01	1.948E-02	3.805E 01	1.948E-02
5.281E 01	8.437E 00	8.437E 00	-4.378E 02	-2.046E 03	-1.139E 03	-9.069E 02	2.788E 03	2.201E 01	1.127E-02	2.201E 01	1.127E-02
5.331E 01	7.317E 00	7.317E 00	-4.173E 02	-2.088E 03	-1.163E 03	-9.242F 02	2.852E 03	1.909E 01	9.773E-03	1.909E 01	9.773E-03
5.406E 01	7.408E 00	7.408E 00	-3.888E 02	-2.146E 03	-1.197E 03	-9.492E 02	2.947E 03	1.932E 01	9.894E-03	1.932E 01	9.894E-03
5.482E 01	7.500E 00	7.500E 00	-3.599E 02	-2.201E 03	-1.228E 03	-9.736E 02	3.045E 03	1.956E 01	1.002E-02	1.956E 01	1.002E-02
5.576E 01	6.682E 00	6.682E 00	-3.265E 02	-2.264E 03	-1.262E 03	-1.002E 03	3.165E 03	1.743E 01	8.924E-03	1.743E 01	8.924E-03
5.625E 01	6.259E 00	6.259E 00	-2.731E 02	-2.293E 03	-1.276E 03	-1.017E 03	3.209E 03	1.632E 01	8.359E-03	1.632E 01	8.359E-03
5.630E 01	2.212E 00	6.211E 00	-2.714E 02	-2.296E 03	-1.278E 03	-1.018E 03	3.216E 03	5.771F 00	2.955E-03	1.620E 01	8.295E-03
5.644E 01	2.212E 00	6.089E 00	-2.673E 02	-2.304E 03	-1.282E 03	-1.022E 03	3.234E 03	5.771E 00	2.955E-03	1.588E 01	8.132E-03
5.652E 01	6.019E 00	6.019E 00	-2.649E 02	-2.308E 03	-1.284E 03	-1.025F 03	3.245E 03	1.570F 01	8.039E-03	1.570E 01	8.039E-03
5.680E 01	5.775E 00	5.775F 00	-2.572E 02	-2.323E 03	-1.291E 03	-1.032E 03	3.280E 03	1.506E 01	7.713E-03	1.506E 01	7.713E-03
5.703E 01	5.629E 00	5.629E 00	-2.517E 02	-2.335E 03	-1.299E 03	-1.039F 03	3.309E 03	1.468F 01	7.517E-03	1.468E 01	7.517E-03
5.775F 01	5.160E 00	5.160F 00	-2.370E 02	-2.370F 03	-1.312E 03	-1.058F 03	3.402E 03	1.346E 01	6.891E-03	1.346E 01	6.891E-03
5.877E 01	4.912E 00	4.912E 00	-2.254E 02	-2.412E 03	-1.330E 03	-1.083E 03	3.532E 03	1.281E 01	6.561E-03	1.281E 01	6.561E-03
6.078E 01	1.575E 00	1.575F 00	-2.246E 02	-2.475F 03	-1.351E 03	-1.124F 03	3.790E 03	4.108E 00	2.104E-03	4.108E 00	2.104E-03
6.220E 01	4.894E 00	4.894E 00	-2.246E 02	-2.517E 03	-1.364E 03	-1.153F 03	3.972E 03	1.276E 01	6.536E-03	1.276E 01	6.536E-03
6.466E 01	8.739E 00	8.739F 00	-2.246E 02	-2.614E 03	-1.395E 03	-1.219E 03	4.289E 03	2.279E 01	1.167E-02	2.279E 01	1.167E-02
6.504E 01	1.159E 01	9.325F 00	-2.246E 02	-2.631E 03	-1.401E 03	-1.230F 03	4.337E 03	3.022E 01	1.548E-02	2.432E 01	1.245E-02

READING = 0069 BLOCK = 95 TIME = 198.604 MACH 6.0 PT = 748.750 TT = 2935.6

XABS	P-IB	P-OB	PDA	QQX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.508E 01	1.159E 01	9.388E 00	-2.246E 02	-2.633E 03	-1.402E 03	-1.231F 03	4.342E 03	3.022E 01	1.548E-02	2.479F 01	1.254E-02
6.52AE 01	1.090E 01	9.700F 00	-2.246E 02	-2.641E 03	-1.405E 03	-1.237E 03	4.368E 03	2.844E 01	1.456E-02	2.530E 01	1.295E-02
6.694F 01	5.230E 00	5.990F 00	-1.364F 02	-2.697F 03	-1.425E 03	-1.271F 03	4.583E 03	1.364E 01	6.985E-03	1.562E 01	8.000E-03
6.761E 01	3.485E 00	3.082E 00	-4.639E 01	-2.712E 03	-1.431E 03	-1.281F 03	4.665E 03	9.090F 00	4.655E-03	8.040E 00	4.117E-03
6.838F 01	1.480E 00	3.055E 00	2.974E 01	-2.730E 03	-1.437E 03	-1.293F 03	4.760E 03	3.860F 00	1.977E-03	7.969E 00	4.081E-03
6.910E 01	1.515E 00	3.030F 00	8.624E 01	-2.752E 03	-1.441E 03	-1.311E 03	4.848E 03	3.952E 00	2.024E-03	7.903E 00	4.047E-03
6.971F 01	1.545E 00	2.913E 00	1.336E 02	-2.772E 03	-1.444E 03	-1.328F 03	4.922E 03	4.030E 00	2.063E-03	7.597E 00	3.890E-03
7.066F 01	1.363E 00	2.730E 00	1.990E 02	-2.801E 03	-1.448E 03	-1.350F 03	5.036E 03	3.554E 00	1.820E-03	7.121F 00	3.646E-03
7.109E 01	1.280E 00	2.465E 00	2.258E 02	-2.813E 03	-1.449E 03	-1.360E 03	5.088E 03	3.339E 00	1.710E-03	6.428F 00	3.292E-03
7.262E 01	1.239E 00	1.520E 00	3.014E 02	-2.843E 03	-1.453E 03	-1.390E 03	5.273E 03	3.232E 00	1.655E-03	3.965E 00	2.030E-03
7.277E 01	1.235E 00	1.483F 00	3.073E 02	-2.846E 03	-1.453E 03	-1.392F 03	5.290E 03	3.221F 00	1.649E-03	3.867E 00	1.980E-03
7.352E 01	1.148E 00	1.295E 00	3.520E 02	-2.858E 03	-1.455E 03	-1.403E 03	5.374E 03	2.995E 00	1.534E-03	3.378E 00	1.730E-03
7.352E 01	1.148E 00	1.294F 00	3.545E 02	-2.856E 03	-1.455E 03	-1.403E 03	5.375E 03	2.994E 00	1.533E-03	3.375F 00	1.728E-03
7.485F 01	9.950E-01	0.000	3.771F 02	-2.884E 03	-1.458E 03	-1.426E 03	5.427E 03	2.595E 00	1.329E-03	0.000	0.000
7.770E 01	9.850E-01	0.000	4.167E 02	-2.889E 03	-1.463E 03	-1.426F 03	5.525E 03	2.569E 00	1.316E-03	0.000	0.000
8.160E 01	1.290E 00	0.000	4.653E 02	-2.895E 03	-1.468E 03	-1.426E 03	5.630E 03	3.365E 00	1.723E-03	0.000	0.000
8.441E 01	1.185E 00	0.000	4.928E 02	-2.900E 03	-1.473E 03	-1.426E 03	5.684E 03	3.091F 00	1.583E-03	0.000	0.000
8.727E 01	1.320E 00	0.000	5.230E 02	-2.909E 03	-1.482E 03	-1.426E 03	5.707E 03	3.443E 00	1.763E-03	0.000	0.000
8.728E 01	1.320E 00	0.000	5.231E 02	-2.909E 03	-1.482E 03	-1.426E 03	5.707E 03	3.444E 00	1.763E-03	0.000	0.000

X	DDRAG	CDRAG	CF	MC
4.040E 01	1.112E 02	1.112E 02	2.260E-03	4.493E-02
4.041E 01	1.889E-01	1.114E 02	2.526E-03	3.511E-02
4.129E 01	1.777E 01	1.292E 02	2.670E-03	4.076E-02
4.130E 01	1.923E-01	1.294E 02	2.459E-03	4.327E-02
4.136E 01	1.213E 00	1.306E 02	2.433E-03	4.401E-02
4.150E 01	2.573E 00	1.332E 02	2.448E-03	4.570E-02
4.246E 01	1.789E 01	1.511E 02	2.508E-03	3.798E-02
4.408E 01	2.871E 01	1.798E 02	2.557E-03	5.580E-02
4.431E 01	3.749E 00	1.835E 02	2.570E-03	5.724E-02
4.480E 01	7.812E 00	1.913E 02	2.606E-03	5.975E-02
4.480E 01	6.240E-02	1.914E 02	2.651E-03	5.889E-02
4.626E 01	2.298E 01	2.144E 02	2.647E-03	5.455E-02
4.731E 01	1.561E 01	2.300E 02	2.579E-03	5.241E-02
4.732E 01	1.527E-01	2.301E 02	2.646E-03	5.136E-02
4.811E 01	1.113E 01	2.413E 02	2.627E-03	5.217E-02
4.877E 01	8.957E 00	2.502E 02	2.686E-03	4.333E-02
4.930E 01	7.010E 00	2.572E 02	2.600E-03	3.889E-02
5.071E 01	1.670E 01	2.739E 02	2.485E-03	3.471E-02
5.281E 01	2.160E 01	2.955E 02	2.459E-03	2.278E-02
5.331E 01	4.616E 00	3.001E 02	2.272E-03	2.134E-02
5.406E 01	6.282E 00	3.064E 02	2.199E-03	2.167E-02
5.482E 01	6.004E 00	3.124E 02	2.269E-03	2.122E-02
5.576E 01	7.232E 00	3.197E 02	2.317E-03	1.900E-02
5.625E 01	2.319E 00	3.220E 02	2.279E-03	1.725E-02
5.630E 01	3.447E-01	3.223E 02	2.414E-03	1.245E-02
5.644E 01	8.497E-01	3.232E 02	2.081E-03	1.332E-02
5.652E 01	5.222E-01	3.237E 02	2.806E-03	1.443E-02
5.680E 01	2.058E 00	3.258E 02	2.799E-03	1.401E-02
5.703E 01	1.665E 00	3.274E 02	2.793E-03	1.375E-02
5.775E 01	5.331E 00	3.328E 02	2.785E-03	1.289E-02
5.877E 01	7.487E 00	3.402E 02	2.780E-03	1.242E-02
6.078E 01	1.629E 01	3.565E 02	3.024E-03	5.187E-03
6.220E 01	1.184E 01	3.684E 02	2.775E-03	1.241E-02
6.466E 01	1.785E 01	3.862E 02	2.807E-03	1.820E-02
6.504E 01	2.377E 00	3.886E 02	2.877E-03	1.980E-02
6.508E 01	2.479E-01	3.888E 02	2.935E-03	2.025E-02
6.528E 01	1.288E 00	3.901E 02	2.932E-03	2.005E-02
6.694E 01	9.759E 00	3.999E 02	2.817E-03	1.366E-02
6.761E 01	2.921E 00	4.028E 02	2.723E-03	9.430E-03
6.838E 01	2.669E 00	4.055E 02	2.654E-03	7.187E-03
6.910E 01	2.218E 00	4.077E 02	2.647E-03	7.181E-03
6.971E 01	1.855E 00	4.096E 02	2.642E-03	7.073E-03
7.066E 01	2.779E 00	4.123E 02	2.625E-03	6.630E-03
7.109E 01	1.199E 00	4.135E 02	2.609E-03	6.202E-03
7.262E 01	3.777E 00	4.173E 02	2.555E-03	4.913E-03
7.277E 01	3.189E-01	4.176E 02	2.551E-03	4.855E-03
7.352E 01	1.504E 00	4.191E 02	2.529E-03	4.467E-03
7.352E 01	2.783E-03	4.191E 02	2.529E-03	4.466E-03
7.485E 01	8.346E-01	4.200E 02	2.487E-03	3.801E-03
7.770E 01	1.466E 00	4.214E 02	2.472E-03	3.751E-03
8.160E 01	1.698E 00	4.231E 02	2.502E-03	4.588E-03
8.441E 01	9.293E-01	4.241E 02	2.476E-03	4.277E-03
8.727E 01	3.874E-01	4.245E 02	2.483E-03	4.625E-03
8.728E 01	0.000	4.245E 02	2.483E-03	4.626E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	92.	(LBF)
MEASURED THRUST	-75.	(LBF)
CALCULATED SPECIFIC IMPULSE	513.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	-416.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.0371	
MEASURED THRUST COEFFICIENT	-.0301	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	5295.	(LBF)
NET THRUST	270.	(LBF)
SPECIFIC IMPULSE	1504.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.1086	

MOMENTUM AND FORCES

INLET FRICTION DRAG	111.2	(LBF)
INLET MOMENTUM CHANGE	-785.3	(LBF)
COMBUSTOR FRICTION DRAG	277.4	(LBF)
COMBUSTOR STRUT DRAG	6.26	(LBF)
COMBUSTOR MOMENTUM CHANGE	166.	(LBF)
NOZZLE FRICTION DRAG	35.85	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	712.	(LBF)
NOZZLE PRESSURE INTEGRAL	748.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-1078.	(LBF)
TOTAL STRUT DRAG	6.26	(LBF)
CAVITY FORCE	-1180.	(LBF)
CALCULATED LOAD CELL FORCE	-2165.	(LBF)
MEASURED LOAD CELL FORCE	-2332.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, 0.0.	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3009	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.185	(IN)
NOZZLE SHROUD TRAILING EDGE	73.525	(IN)
NOZZLE PLUG TRAILING EDGE	87.277	(IN)
STRUT LEADING EDGE	56.441	(IN)
STRUT TRAILING EDGE	65.041	(IN)
COMBUSTOR EXIT	65.041	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9898	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1586	
DELTA PT2	0.1207	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3452	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1610	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8859	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9037	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9341	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8895	
ENTHALPY AT P0 - SUPERSONIC	-3.59	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	27.02	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0066
EQUIVALENCE RATIO	0.224
COMBUSTOR EFFICIENCY	1.000
TOTAL PRESSURE RATIO	0.1637
COMBUSTOR EFFECTIVENESS	0.8138
INJECTOR DISCHARGE COEFFICIENTS	0.8321, 0.7044,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9654
NOZZLE COEFFICIENT - CT	0.9062
PROCESS EFFICIENCY	0.8868
KINETIC ENERGY EFFICIENCY	0.9242

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.286	B
1C	44.300	
2A	48.761	
2C	46.250	
3A	54.051	
3B	56.236	
4	44.786	

Reading 69

t = 212.10 sec.

READING = 0069 BLOCK = 110 TIME = 212.104 MACH 6.0 PI = 749.999 TT = 3054.3 3/03/75 PAGE 1

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	F/AC	MOMTM	G	IVAL	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	749.999	3054	687.3(812)	1.2920	28.860	2607											
0.000	0.403	419	-28.5(101)	1.3989	28.859	1005	5.957	5985	1.833	0.10747	27.008	0.9812	5125	9.995	189.6		
SPIKE TIP NS		2	0 3														
0.600	18.062	3054	687.3(812)	1.2918	28.859	2607											
0.600	16.222	2981	664.9(791)	1.2941	28.859	2578	0.410	1057	2.090	0.10747	27.008	0.9812	4964	1.766	185.8		
WIND TUNNEL		3	0 0														
0.000	749.999	3054	687.3(812)	1.2920	28.860	2607											
0.000	0.381	412	-30.1(99)	1.3988	28.859	997	6.012	5991	1.833	0.10332	25.965	0.9812	4931	9.620	189.9		
SPIKE TIP NS		4	0 0														
0.600	18.062	3054	687.3(812)	1.2918	28.859	2607											
0.600	16.381	2967	666.9(793)	1.2939	28.859	2580	0.391	1009	2.090	0.10332	25.965	0.9812	4931	1.620	189.9		
INLET THROAT		5	0 4														
40.400	295.938	2989	667.4(793)	1.2940	28.859	2581											
40.400	15.908	1466	233.7(363)	1.3507	28.859	1847	2.522	4658	1.891	0.94382	27.008	0.1117	4366	68.326	161.6		
INLET UPARSK		6	0 3														
40.400	295.938	2989	667.4(793)	1.2940	28.859	2581											
40.400	15.666	1409	218.7(348)	1.3540	28.859	1813	2.613	4738	1.891	0.85802	27.008	0.1229	4408	63.182	163.2		
INLET DNARSK		7	0 4														
40.400	124.508	2989	667.4(793)	1.2940	28.859	2581											
40.400	106.960	2887	636.6(763)	1.2972	28.859	2540	0.488	1240	1.950	0.85802	27.008	0.1229	4408	16.535	163.2		
COMBUSTOR	0	8	1 21														
40.410	248.355	2949	669.5(814)	1.2963	27.635	2622											
40.410	12.875	1427	219.7(368)	1.3541	27.635	1865	2.544	4744	1.970	0.94698	27.102	0.1117	4365	69.814	161.0	0.12	0.07
COMBUSTOR	0	9	2 21														
41.284	188.378	2880	672.2(824)	1.3000	26.527	2649											
41.284	15.879	1572	269.7(425)	1.3477	26.527	1993	2.252	4488	2.047	0.95282	27.192	0.1114	4246	66.458	156.2	0.23	0.04
COMBUSTOR	0	10	3 21														
41.294	196.794	2840	672.2(812)	1.3019	26.485	2635											
41.294	15.913	1530	270.2(413)	1.3503	26.485	1970	2.277	4485	2.040	0.95215	27.192	0.1115	4245	66.363	156.1	0.23	0.01
COMBUSTOR	0	11	4 21														
41.359	195.672	2834	671.9(810)	1.3022	26.479	2632											
41.359	16.137	1534	273.1(414)	1.3502	26.479	1972	2.265	4467	2.040	0.95364	27.192	0.1113	4236	66.202	155.8	0.23	0.00
COMBUSTOR	0	12	5 21														
41.500	191.586	2831	671.3(809)	1.3023	26.478	2631											
41.500	17.583	1575	285.4(426)	1.3480	26.478	1997	2.201	4394	2.041	0.95363	27.192	0.1113	4215	65.125	155.0	0.23	0.00
COMBUSTOR	0	13	6 21														
42.460	172.889	2815	666.2(804)	1.3028	26.478	2624											
42.460	19.086	1642	304.8(445)	1.3448	26.478	2036	2.089	4253	2.047	0.94422	27.192	0.1124	4144	62.401	152.4	0.23	0.00
COMBUSTOR	0	14	7 4														
44.079	119.565	3403	654.3(983)	1.2747	27.163	2818											
44.079	39.367	2655	409.0(745)	1.2998	27.166	2513	1.394	3503	2.116	0.91292	27.192	0.1163	4133	49.696	152.0	0.23	0.57
COMBUSTOR	0	15	8 3														
44.310	117.560	3438	652.2(994)	1.2728	27.211	2828											
44.310	40.925	2721	415.7(765)	1.2970	27.214	2539	1.355	3440	2.119	0.91123	27.192	0.1165	4129	48.714	151.8	0.23	0.61
COMBUSTOR	0	16	9 3														
44.794	113.840	3493	647.3(1010)	1.2698	27.291	2843											
44.794	44.188	2838	429.7(801)	1.2922	27.296	2585	1.277	3299	2.124	0.90721	27.192	0.1170	4113	46.517	151.3	0.23	0.68
COMBUSTOR	0	17	10 2														
44.800	113.788	3493	647.2(1010)	1.2698	27.291	2843											
44.800	44.229	2839	430.0(801)	1.2921	27.296	2585	1.276	3297	2.124	0.90722	27.192	0.1170	4112	46.489	151.2	0.23	0.68
COMBUSTOR	0	18	11 6														
46.250	106.393	3150	606.7(979)	1.2876	24.845	2849											
46.250	41.857	2543	434.9(771)	1.3078	24.846	2580	1.262	3255	2.249	0.86148	27.394	0.1242	4102	43.577	149.8	0.48	0.26

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	V/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 2														
46.260	106.348	3151	646.5(979)	1.2676	24.846	2849											
46.260	41.841	2544	434.7(771)	1.3077	24.847	2580	1.262	3255	2.249	0.86097	27.394	0.1242	4103	43.555	149.8	0.48	0.26
COMBUSTOR	0	20	13 4														
47.310	101.011	3305	634.2(1029)	1.2797	25.041	2898											
47.310	40.123	2686	415.3(816)	1.3005	25.043	2633	1.257	3309	2.263	0.80126	27.394	0.1335	4189	41.208	152.9	0.48	0.35
COMBUSTOR	0	21	14 2														
47.319	100.980	3307	634.1(1030)	1.2797	25.043	2898											
47.319	40.119	2687	415.2(817)	1.3005	25.045	2634	1.257	3310	2.263	0.80089	27.394	0.1335	4190	41.192	153.0	0.48	0.35
COMBUSTOR	0	22	15 4														
48.110	97.614	3413	625.3(1065)	1.2741	25.181	2930											
48.110	36.206	2738	385.3(832)	1.2970	25.184	2648	1.309	3466	2.272	0.74672	27.394	0.1432	4279	40.216	156.2	0.48	0.41
COMBUSTOR	0	23	16 5														
48.759	93.930	3175	627.0(1051)	1.2866	23.359	2949											
48.759	31.077	2462	362.8(792)	1.3106	23.361	2621	1.387	3635	2.380	0.69364	27.573	0.1552	4351	39.188	157.6	0.71	0.25
COMBUSTOR	0	24	17 2														
48.769	93.890	3176	626.9(1051)	1.2866	23.360	2949											
48.769	31.000	2462	362.2(791)	1.3106	23.362	2620	1.389	3639	2.380	0.69274	27.573	0.1554	4352	39.174	157.8	0.71	0.26
COMBUSTOR	0	25	18 3														
49.299	92.659	3198	621.9(1059)	1.2854	23.393	2956											
49.299	26.887	2405	329.0(771)	1.3121	23.395	2590	1.478	3828	2.382	0.64788	27.573	0.1662	4425	38.544	160.5	0.71	0.27
COMBUSTOR	0	26	19 4														
50.709	83.362	3427	610.2(1139)	1.2737	23.648	3029											
50.709	23.137	2572	288.8(826)	1.3030	23.652	2654	1.511	4010	2.406	0.55216	27.573	0.1950	4592	34.412	166.5	0.71	0.36
COMBUSTOR	0	27	20 4														
52.809	74.828	3652	595.8(1219)	1.2613	23.914	3095											
52.809	18.262	2686	226.5(862)	1.2957	23.924	2689	1.599	4299	2.428	0.45256	27.573	0.2379	4797	30.234	174.0	0.71	0.45
COMBUSTOR	0	28	21 4														
53.309	71.663	3749	592.8(1253)	1.2557	24.023	3121											
53.309	18.075	2709	222.2(847)	1.2907	24.036	2729	1.578	4306	2.436	0.43407	27.573	0.2480	4839	29.049	175.5	0.71	0.49
COMBUSTOR	0	29	22 4														
54.059	69.999	3792	588.5(1268)	1.2530	24.080	3132											
54.059	16.585	2788	199.6(896)	1.2900	24.096	2724	1.619	4411	2.440	0.40917	27.573	0.2631	4898	28.049	177.6	0.71	0.51
COMBUSTOR	0	30	23 3														
54.819	69.068	3809	584.4(1278)	1.2519	24.109	3136											
54.819	15.075	2792	175.3(882)	1.2908	24.126	2706	1.672	4524	2.442	0.38693	27.573	0.2782	4952	27.205	179.6	0.71	0.52
COMBUSTOR	0	31	24 3														
55.760	67.750	3839	579.8(1293)	1.2502	24.148	3142											
55.760	13.631	2724	149.9(872)	1.2913	24.167	2690	1.724	4638	2.444	0.36292	27.573	0.2966	5010	26.157	181.7	0.71	0.54
COMBUSTOR	0	32	25 5														
56.244	52.440	4247	577.6(1431)	1.2215	24.606	3238											
56.244	12.889	3232	155.6(1048)	1.2663	24.671	2872	1.600	4596	2.483	0.29263	27.573	0.3679	5153	20.900	186.9	0.71	0.70
COMBUSTOR	0	33	26 5														
56.299	61.970	3873	577.4(1297)	1.2474	24.196	3151											
56.299	9.890	2617	92.5(832)	1.2944	24.218	2637	1.868	4926	2.453	0.29170	27.573	0.3691	5156	22.330	187.0	0.71	0.55
COMBUSTOR	0	34	27 3														
56.439	61.937	3876	576.8(1298)	1.2472	24.200	3152											
56.439	9.782	2614	89.4(831)	1.2944	24.223	2635	1.874	4939	2.453	0.28976	27.573	0.3715	5163	22.239	187.3	0.71	0.55
COMBUSTOR	0	35	28 21														
56.519	43.951	4828	576.5(1601)	1.1729	25.283	3337											
56.519	12.467	3985	142.4(1314)	1.2143	25.554	3068	1.519	4661	2.510	0.29295	27.573	0.3675	5168	21.219	187.4	0.71	1.00
COMBUSTOR	0	36	29 21														
56.799	43.993	4826	575.4(1601)	1.1730	25.284	3336											
56.799	12.037	3958	130.4(1304)	1.2159	25.559	3060	1.542	4719	2.509	0.29193	27.573	0.3688	5181	21.410	187.9	0.71	1.00
COMBUSTOR	0	37	30 21														
57.025	43.908	4825	574.5(1600)	1.1731	25.285	3336											
57.025	11.558	3930	117.8(1293)	1.2176	25.563	3051	1.567	4781	2.509	0.29143	27.573	0.3694	5191	21.653	188.3	0.71	1.00

READING = 0069 BLOCK = 110 TIME = 212.104 MACH 6.0 PT = 749.999 TT = 505.3

	P	T	H	GAMMA	POLWT	SONV	MACH	VEL	S	W/A	R	A/AC	MOMTM	F	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
57.749	42.794	4619	571.9(1638)	1.1730	25.285	3334											
57.749	10.020	3845	80.3(1261)	1.2223	25.575	3023	1.641	4959	2.511	0.28686	27.573	0.3755	5213	22.109	189.1	0.71	1.00
COMBUSTOR	0	39	32 21														
58.769	32.996	4793	568.8(1628)	1.1703	25.265	3323											
58.769	5.137	3561	38.4(1154)	1.2364	25.600	2924	1.865	5512	2.531	0.28500	27.573	0.3777	5221	24.417	189.3	0.71	1.00
COMBUSTOR	0	40	33 21														
60.779	46.939	4813	563.6(1635)	1.1748	25.302	3333											
60.779	16.200	4098	193.0(1357)	1.2090	25.537	3106	1.387	4506	2.502	0.29495	27.573	0.3650	5205	19.738	186.8	0.71	1.00
COMBUSTOR	0	41	34 21														
62.199	47.724	4808	559.6(1634)	1.1754	25.308	3332											
62.199	15.525	4050	170.9(1339)	1.2120	25.547	3091	1.427	4411	2.500	0.30295	27.573	0.3553	5193	20.765	188.3	0.71	1.00
COMBUSTOR	0	42	35 200														
64.663	45.229	4792	551.7(1627)	1.1755	25.312	3326											
64.663	18.325	4186	234.6(1391)	1.2040	25.519	3134	1.271	3983	2.502	0.28716	27.573	0.3749	5173	17.776	187.6	0.71	1.00
COMBUSTOR	0	43	36 200														
65.039	41.952	4784	550.3(1624)	1.1748	25.307	3323											
65.039	18.920	4254	268.8(1417)	1.1993	25.499	3154	1.190	3753	2.508	0.28696	27.573	0.4032	5170	15.571	187.5	0.71	1.00
COMBUSTOR REGEN		44	37 3														
65.039	41.952	4950	664.3(1690)	1.1653	25.176	3375											
65.039	18.464	4425	362.1(1484)	1.1861	25.428	3203	1.214	3888	2.531	0.26696	27.573	0.4032	5239	16.132	190.0	0.71	1.00
NOZZLE AE		45	38 5														
87.275	41.952	4784	550.3(1576)	1.1748	25.307	3323											
87.275	1.167	2464	-450.5(757)	1.2837	25.626	2477	2.857	7077	2.508	0.05557	27.573	1.9371	6644	6.112	240.9	0.71	1.00
NOZZLE PO		46	39 5														
87.275	41.952	4784	550.3(1576)	1.1748	25.307	3323											
87.275	0.403	1935	-631.2(576)	1.3047	25.627	2213	3.475	7689	2.508	0.02654	27.573	4.0557	7008	3.172	254.2	0.71	1.00
NOZZLE AE REGEN		47	40 5														
87.275	41.952	4950	664.3(1690)	1.1653	25.176	3375											
87.275	1.236	2665	-379.0(827)	1.2763	25.626	2569	2.813	7225	2.531	0.05557	27.573	1.9371	6805	6.240	246.8	0.71	1.00
NOZZLE PO REGEN		48	41 5														
87.275	41.952	4950	664.3(1690)	1.1653	25.176	3375											
87.275	0.403	2075	-584.3(623)	1.2986	25.027	2286	3.457	7904	2.531	0.02544	27.573	4.2310	7210	3.125	261.5	0.71	1.00
FICTIVE COMBUSTR		68	61 0														
65.039	295.938	4904	550.3(1669)	1.1960	25.444	3386											
65.039	0.403	1192	-866.7(341)	1.3466	25.027	1765	4.772	8420	2.355	0.04719	27.573	2.2814	7452	6.175	270.3	0.71	1.00
FICTIVE NOZZLE		69	62 0														
87.275	26.484	4713	526.1(1597)	1.1717	25.293	3295											
87.275	1.446	2815	-324.8(841)	1.2706	29.625	2634	2.477	6525	2.539	0.05557	27.573	1.9371	6309	5.636	228.6	0.71	1.00

XABS	P-IR	P-OB	PDA	QDX	W-IP	Q-OB	CAVALI	P-IR/PSO	P-IR/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.085E 00	0.000	-4.406E-01	0.000	0.000	0.000	2.470E-02	2.694E 00	1.447E-03	0.000	0.000
1.836E 01	1.085E 00	0.000	-3.611E 01	0.000	0.000	0.000	1.634E 02	2.694E 00	1.447E-03	0.000	0.000
3.070E 01	2.305E 00	0.000	-1.735E 02	0.000	0.000	0.000	5.053E 02	5.724E 00	3.073E-03	0.000	0.000
3.508E 01	3.990E 00	0.000	-3.775E 02	0.000	0.000	0.000	6.804E 02	9.908E 00	5.320E-03	0.000	0.000
3.518E 01	4.001E 00	5.938E 00	-4.443E 02	0.000	0.000	0.000	6.847E 02	9.936E 00	5.335E-03	1.474E 01	7.917E-03
3.518E 01	4.002E 00	5.902E 00	-4.444E 02	0.000	0.000	0.000	6.850E 02	9.938E 00	5.336E-03	1.465E 01	7.869E-03
3.555E 01	4.045E 00	3.682E 00	-4.526E 02	0.000	0.000	0.000	7.218E 02	1.004E 01	5.393E-03	9.143E 00	4.909E-03
3.585E 01	4.013E 00	1.875E 00	-4.674E 02	-3.301E 02	-3.301E 02	0.000	7.521E 02	9.964E 00	5.350E-03	4.656E 00	2.500E-03
3.604E 01	3.990E 00	2.788E 00	-4.791E 02	-3.342E 02	-3.342E 02	0.000	7.738E 02	9.908E 00	5.320E-03	6.923E 00	3.717E-03
3.648E 01	4.289E 00	4.604E 00	-4.992E 02	-3.423E 02	-3.423E 02	0.000	8.174E 02	1.065E 01	5.718E-03	1.143E 01	6.138E-03
3.701E 01	4.380E 00	6.895E 00	-5.235E 02	-3.708E 02	-3.531E 02	-1.764E 01	8.734E 02	1.088E 01	5.840E-03	1.712E 01	9.194E-03
3.731E 01	4.250E 00	8.187E 00	-5.352E 02	-3.827E 02	-3.595E 02	-2.321E 01	9.055E 02	1.055E 01	5.666E-03	2.033E 01	1.092E-02
3.803E 01	3.935E 00	1.366E 01	-5.498E 02	-4.118E 02	-3.755E 02	-3.630E 01	9.843E 02	9.771E 00	5.247E-03	3.391E 01	1.821E-02
3.833E 01	5.571E 00	1.592E 01	-5.483E 02	-4.245E 02	-3.829E 02	-4.166E 01	1.018E 03	1.383E 01	7.428E-03	3.954E 01	2.123E-02
3.875E 01	7.877E 00	1.545E 01	-5.510E 02	-4.438E 02	-3.946E 02	-4.917E 01	1.065E 03	1.956E 01	1.050E-02	3.838E 01	2.061E-02
3.880E 01	8.144E 00	1.540E 01	-5.514E 02	-4.461E 02	-3.961E 02	-5.004E 01	1.071E 03	2.022E 01	1.086E-02	3.824E 01	2.053E-02
3.901E 01	9.300E 00	1.564E 01	-5.524E 02	-4.565E 02	-4.028E 02	-5.377E 01	1.095E 03	2.309E 01	1.240E-02	3.884E 01	2.086E-02
3.931E 01	1.362E 01	1.599E 01	-5.584E 02	-4.721E 02	-4.130E 02	-5.903E 01	1.129E 03	3.383E 01	1.816E-02	3.970E 01	2.132E-02
3.950E 01	1.639E 01	1.190E 01	-5.672E 02	-4.825E 02	-4.201E 02	-6.236E 01	1.151E 03	4.069E 01	2.185E-02	2.954E 01	1.586E-02
3.980E 01	1.712E 01	5.500E 00	-5.891E 02	-4.996E 02	-4.321E 02	-6.747E 01	1.186E 03	4.252E 01	2.283E-02	1.366E 01	7.333E-03
4.000E 01	1.762E 01	5.313E 00	-6.076E 02	-5.117E 02	-4.409E 02	-7.085E 01	1.210E 03	4.375E 01	2.349E-02	1.319E 01	7.084E-03
4.040E 01	2.074E 01	4.941E 00	-6.459E 02	-5.374E 02	-4.593E 02	-7.805E 01	1.257E 03	5.150E 01	2.765E-02	1.227E 01	6.588E-03
4.041E 01	2.082E 01	4.932E 00	-6.468E 02	-5.381E 02	-4.598E 02	-7.824E 01	1.258E 03	5.170E 01	2.776E-02	1.225E 01	6.576E-03
4.128E 01	2.764E 01	4.120E 00	-7.470E 02	-6.156E 02	-5.048E 02	-1.108E 02	1.361E 03	6.663E 01	3.685E-02	1.023E 01	5.493E-03
4.129E 01	2.772E 01	4.110E 00	-7.483E 02	-6.167E 02	-5.054E 02	-1.113E 02	1.362E 03	6.683E 01	3.696E-02	1.021E 01	5.481E-03
4.136E 01	2.822E 01	4.050F 00	-7.565E 02	-6.240E 02	-5.090E 02	-1.150E 02	1.370E 03	7.009E 01	3.763E-02	1.006E 01	5.400E-03
4.150E 01	2.932E 01	5.842E 00	-7.739E 02	-6.404E 02	-5.170E 02	-1.235E 02	1.387E 03	7.282F 01	3.910E-02	1.451E 01	7.789E-03
4.246E 01	2.014E 01	1.803E 01	-8.278E 02	-7.796E 02	-5.827E 02	-1.969E 02	1.502E 03	5.001E 01	2.685E-02	4.478E 01	2.405E-02
4.408E 01	4.014E 01	3.859E 01	-8.111E 02	-1.105E 03	-7.575E 02	-3.475E 02	1.698E 03	9.968E 01	5.352E-02	9.584E 01	5.146E-02
4.431E 01	4.300E 01	3.885E 01	-8.118E 02	-1.161E 03	-7.899E 02	-3.710E 02	1.726E 03	1.068E 02	5.733E-02	9.648E 01	5.181E-02
4.479E 01	4.897E 01	3.940F 01	-8.192E 02	-1.293E 03	-8.637E 02	-4.298E 02	1.785E 03	1.216E 02	6.530E-02	9.784E 01	5.253E-02
4.480E 01	4.905E 01	3.941E 01	-8.197E 02	-1.295E 03	-8.647E 02	-4.306E 02	1.786E 03	1.218E 02	6.540E-02	9.786E 01	5.254E-02
4.625E 01	4.267E 01	4.104F 01	-7.736E 02	-1.746E 03	-1.068E 03	-6.581E 02	1.964E 03	1.060E 02	5.689E-02	1.019E 02	5.473E-02
4.626E 01	4.263E 01	4.106E 01	-7.730E 02	-1.750E 03	-1.090E 03	-6.599E 02	1.965E 03	1.058E 02	5.683E-02	1.019E 02	5.474E-02
4.731E 01	3.801E 01	4.224E 01	-6.700E 02	-2.087E 03	-1.240E 03	-8.474E 02	2.095E 03	9.430E 01	5.068E-02	1.049E 02	5.632E-02
4.732E 01	3.799E 01	4.225E 01	-6.692E 02	-2.090E 03	-1.241E 03	-8.490E 02	2.096E 03	9.433E 01	5.065E-02	1.049E 02	5.633E-02
4.811F 01	3.630E 01	3.611E 01	-5.690E 02	-2.331E 03	-1.348E 03	-9.825E 02	2.195E 03	9.014E 01	4.840E-02	8.967E 01	4.815E-02
4.876E 01	3.108E 01	3.108E 01	-4.666E 02	-2.512E 03	-1.432E 03	-1.080E 03	2.276E 03	7.717E 01	4.144E-02	7.717E 01	4.144E-02
4.877F 01	3.100E 01	3.100E 01	-4.649E 02	-2.514E 03	-1.433E 03	-1.081E 03	2.277E 03	7.698E 01	4.133E-02	7.698E 01	4.133E-02
4.930E 01	2.689E 01	2.689E 01	-3.850E 02	-2.651E 03	-1.499E 03	-1.152E 03	2.344E 03	6.677E 01	3.585E-02	6.677E 01	3.585E-02
5.071F 01	2.314E 01	2.314E 01	-2.001E 02	-2.974E 03	-1.660E 03	-1.314E 03	2.521E 03	5.745E 01	3.085E-02	5.745E 01	3.085E-02
5.281E 01	1.826E 01	1.826F 01	2.785F 01	-3.370E 03	-1.868E 03	-1.502E 03	2.788E 03	4.535E 01	2.435E-02	4.535E 01	2.435E-02
5.331E 01	1.807E 01	1.807E 01	7.508E 01	-3.453E 03	-1.912E 03	-1.542E 03	2.851E 03	4.488E 01	2.410E-02	4.488F 01	2.410E-02
5.406E 01	1.658E 01	1.658E 01	1.421E 02	-3.572E 03	-1.973E 03	-1.599E 03	2.947E 03	4.118E 01	2.211E-02	4.118E 01	2.211E-02
5.482E 01	1.507E 01	1.507E 01	2.035E 02	-3.685F 03	-2.030E 03	-1.655F 03	3.045E 03	3.743E 01	2.010E-02	3.743E 01	2.010E-02
5.576E 01	1.363E 01	1.363E 01	2.712E 02	-3.813E 03	-2.094E 03	-1.719F 03	3.166E 03	3.385E 01	1.818E-02	3.385E 01	1.818E-02
5.624E 01	1.289E 01	1.289E 01	4.169E 02	-3.872E 03	-2.122E 03	-1.750E 03	3.209E 03	3.201E 01	1.719E-02	3.201E 01	1.719E-02
5.630E 01	6.975E 00	1.280E 01	4.206E 02	-3.878E 03	-2.124E 03	-1.753E 03	3.216E 03	1.732E 01	9.300E-03	3.180E 01	1.707E-02
5.644E 01	6.975E 00	1.259E 01	4.289E 02	-3.893E 03	-2.131E 03	-1.762F 03	3.234E 03	1.732E 01	9.300E-03	3.126E 01	1.679E-02
5.652F 01	1.247E 01	1.247E 01	4.339E 02	-3.902E 03	-2.135E 03	-1.767E 03	3.245E 03	3.096E 01	1.662E-02	3.096E 01	1.662E-02
5.680F 01	1.204E 01	1.204E 01	4.499E 02	-3.933F 03	-2.148E 03	-1.785F 03	3.280E 03	2.989E 01	1.605E-02	2.989E 01	1.605E-02
5.702F 01	1.156E 01	1.156E 01	4.614E 02	-3.957F 03	-2.158E 03	-1.799E 03	3.309E 03	2.870E 01	1.541E-02	2.870E 01	1.541E-02
5.775E 01	1.002E 01	1.002F 01	4.906E 02	-4.030E 03	-2.187E 03	-1.843E 03	3.402E 03	2.488E 01	1.336E-02	2.488E 01	1.336E-02
5.877E 01	5.137E 00	5.137F 00	5.082E 02	-4.115E 03	-2.221E 03	-1.894F 03	3.532E 03	1.276F 01	6.850E-03	1.276E 01	6.850E-03
6.07AF 01	1.620E 01	1.620F 01	5.107E 02	-4.260E 03	-2.267E 03	-1.993F 03	3.790E 03	4.023F 01	2.160E-02	4.023E 01	2.160E-02
6.220E 01	1.552E 01	1.552E 01	5.107E 02	-4.366F 03	-2.297E 03	-2.072F 03	3.972E 03	3.855E 01	2.070E-02	3.855E 01	2.070E-02

XABS	P-IB	P-OB	PDA	QOX	Q-IP	Q-OP	CA-ALL	P-TB/PS0	P-IP/PT0	P-OB/PS0	P-OB/PT0
6.466E 01	1.832E 01	1.632E 01	5.107E 02	-4.586E 03	-2.374E 03	-2.214E 03	4.269E 03	4.550E 01	2.443E-02	4.550E 01	2.443E-02
6.504E 01	1.909E 01	1.675E 01	5.107E 02	-4.627E 03	-2.388E 03	-2.238E 03	4.337E 03	4.740E 01	2.545E-02	4.657E 01	2.500E-02
6.508E 01	1.909E 01	1.680E 01	5.107E 02	-4.631E 03	-2.390E 03	-2.241E 03	4.342E 03	4.740E 01	2.545E-02	4.668E 01	2.506E-02
6.528E 01	1.798E 01	1.902E 01	5.107E 02	-4.651E 03	-2.398E 03	-2.253E 03	4.368E 03	4.464E 01	2.397E-02	4.724E 01	2.537E-02
6.694E 01	8.750E 00	9.200E 00	6.645E 02	-4.797E 03	-2.451E 03	-2.345E 03	4.583E 03	2.173E 01	1.167E-02	2.285E 01	1.227E-02
6.761E 01	6.545E 00	9.127E 00	8.344E 02	-4.847E 03	-2.467E 03	-2.380E 03	4.665E 03	1.625E 01	8.726E-03	2.267E 01	1.217E-02
6.838E 01	4.010E 00	6.951E 00	1.014E 03	-4.904E 03	-2.482E 03	-2.422E 03	4.760E 03	9.958E 00	5.347E-03	1.726E 01	9.267E-03
6.910E 01	2.879E 00	4.915E 00	1.132E 03	-4.961E 03	-2.493E 03	-2.468E 03	4.848E 03	7.147E 00	3.838E-03	1.220E 01	6.553E-03
6.971E 01	1.920E 00	3.982E 00	1.204E 03	-5.007E 03	-2.500E 03	-2.506E 03	4.922E 03	4.768E 00	2.560E-03	9.899E 00	5.317E-03
7.066E 01	1.510E 00	2.530E 00	1.281E 03	-5.062E 03	-2.510E 03	-2.553E 03	5.036E 03	3.751E 00	2.014E-03	6.282E 00	3.373E-03
7.109E 01	1.325E 00	2.363E 00	1.307E 03	-5.082E 03	-2.513E 03	-2.569E 03	5.088E 03	3.290E 00	1.767E-03	5.868E 00	3.151E-03
7.262E 01	1.339E 00	1.770E 00	1.386E 03	-5.140E 03	-2.523E 03	-2.617E 03	5.273E 03	3.324E 00	1.785E-03	4.395E 00	2.360E-03
7.277E 01	1.340E 00	1.713E 00	1.393E 03	-5.145E 03	-2.524E 03	-2.621E 03	5.290E 03	3.327E 00	1.787E-03	4.254E 00	2.284E-03
7.352E 01	1.244E 00	1.430E 00	1.443E 03	-5.172E 03	-2.528E 03	-2.644E 03	5.374E 03	3.090E 00	1.659E-03	3.551E 00	1.907E-03
7.352E 01	1.244E 00	1.428E 00	1.446E 03	-5.172E 03	-2.528E 03	-2.644E 03	5.375E 03	3.089E 00	1.659E-03	3.547E 00	1.905E-03
7.485E 01	1.075E 00	0.000	1.470E 03	-5.227E 03	-2.536E 03	-2.691E 03	5.427E 03	2.669E 00	1.433E-03	0.000	0.000
7.770E 01	2.325E 00	0.000	1.538E 03	-5.240E 03	-2.549E 03	-2.691E 03	5.525E 03	5.773E 00	3.100E-03	0.000	0.000
8.160E 01	1.455E 00	0.000	1.619E 03	-5.256E 03	-2.565E 03	-2.691E 03	5.630E 03	3.613E 00	1.940E-03	0.000	0.000
8.441E 01	1.195E 00	0.000	1.648E 03	-5.270E 03	-2.579E 03	-2.691E 03	5.684E 03	2.967E 00	1.593E-03	0.000	0.000
8.727E 01	2.680E 00	0.000	1.695E 03	-5.294E 03	-2.603E 03	-2.691E 03	5.707E 03	6.655E 00	3.573E-03	0.000	0.000
8.727E 01	2.683E 00	0.000	1.695E 03	-5.294E 03	-2.603E 03	-2.691E 03	5.707E 03	6.663E 00	3.578E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.176E 02	1.176E 02	2.211E-03	4.380E-02
4.041E 01	1.920E-01	1.178E 02	2.490E-03	3.632E-02
4.128E 01	1.802E 01	1.358E 02	2.627E-03	4.188E-02
4.129E 01	1.955E-01	1.360E 02	2.417E-03	4.440E-02
4.136E 01	1.232E 00	1.372E 02	2.389E-03	4.515E-02
4.150E 01	2.648E 00	1.399E 02	2.405E-03	4.777E-02
4.246E 01	1.776E 01	1.576E 02	2.446E-03	4.941E-02
4.408E 01	2.742E 01	1.851E 02	2.547E-03	7.411E-02
4.431E 01	3.748E 00	1.888E 02	2.877E-03	6.696E-02
4.479E 01	8.122E 00	1.969E 02	2.899E-03	6.806E-02
4.480E 01	1.019E-01	1.970E 02	2.930E-03	6.735E-02
4.625E 01	2.438E 01	2.214E 02	3.148E-03	6.188E-02
4.626E 01	1.711E-01	2.216E 02	3.148E-03	6.188E-02
4.731E 01	1.045E 01	2.380E 02	2.812E-03	6.678E-02
4.732E 01	1.140E-01	2.381E 02	2.812E-03	6.678E-02
4.811E 01	1.138E 01	2.495E 02	2.851E-03	6.171E-02
4.876E 01	9.539E 00	2.591E 02	3.067E-03	5.379E-02
4.877E 01	1.447E-01	2.592E 02	2.827E-03	5.819E-02
4.930E 01	7.239E 00	2.664E 02	2.777E-03	5.381E-02
5.071E 01	1.776E 01	2.842E 02	2.707E-03	4.850E-02
5.281E 01	2.339E 01	3.076E 02	2.726E-03	3.985E-02
5.331E 01	5.259E 00	3.128E 02	2.841E-03	3.776E-02
5.406E 01	7.794E 00	3.206E 02	2.857E-03	3.514E-02
5.482E 01	7.676E 00	3.283E 02	2.850E-03	3.276E-02
5.576E 01	9.162E 00	3.375E 02	2.828E-03	3.049E-02
5.624E 01	2.902E 00	3.404E 02	2.793E-03	2.770E-02
5.630E 01	4.383E-01	3.408E 02	2.963E-03	2.284E-02
5.644E 01	1.134E 00	3.419E 02	2.766E-03	2.334E-02
5.652E 01	6.690E-01	3.426E 02	3.291E-03	2.366E-02
5.680E 01	2.468E 00	3.451E 02	3.241E-03	2.320E-02
5.702E 01	2.010E 00	3.471E 02	3.234E-03	2.265E-02
5.775E 01	6.543E 00	3.536E 02	3.223E-03	2.070E-02
5.877E 01	9.925E 00	3.636E 02	3.305E-03	1.296E-02
6.078E 01	1.857E 01	3.821E 02	3.217E-03	2.735E-02
6.220E 01	1.184E 01	3.940E 02	3.198E-03	2.697E-02
6.466E 01	1.962E 01	4.136E 02	3.243E-03	2.833E-02
6.504E 01	2.630E 00	4.162E 02	3.296E-03	2.761E-02
6.508E 01	2.708E-01	4.165E 02	3.374E-03	2.831E-02
6.528E 01	1.395E 00	4.179E 02	3.369E-03	2.808E-02
6.694E 01	1.143E 01	4.293E 02	3.243E-03	1.953E-02
6.761E 01	4.113E 00	4.334E 02	3.221E-03	1.795E-02
6.838E 01	4.352E 00	4.378E 02	3.165E-03	1.421E-02
6.910E 01	3.466E 00	4.412E 02	3.113E-03	1.121E-02
6.971E 01	2.499E 00	4.437E 02	3.076E-03	9.189E-03
7.066E 01	3.234E 00	4.470E 02	3.026E-03	6.948E-03
7.109E 01	1.279E 00	4.483E 02	3.013E-03	6.486E-03
7.262E 01	4.186E 00	4.524E 02	2.984E-03	5.687E-03
7.277E 01	3.691E-01	4.528E 02	2.981E-03	5.608E-03
7.352E 01	1.727E 00	4.545E 02	2.958E-03	5.061E-03
7.352E 01	3.171E-03	4.545E 02	2.958E-03	5.058E-03
7.485E 01	9.485E-01	4.555E 02	2.921E-03	4.267E-03
7.770E 01	2.159E 00	4.576E 02	3.011E-03	7.619E-03
8.160E 01	2.485E 00	4.601E 02	2.927E-03	5.317E-03
8.441E 01	1.043E 00	4.612E 02	2.887E-03	4.550E-03
8.727E 01	5.291E-01	4.617E 02	2.984E-03	4.324E-03
8.727E 01	0.000	4.617E 02	2.984E-03	8.331E-03

320

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1160.	(LBF)
MEASURED THRUST	1183.	(LBF)
CALCULATED SPECIFIC IMPULSE	2090.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2094.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.4610	
MEASURED THRUST COEFFICIENT	0.4619	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	6463.	(LBF)
NET THRUST	1334.	(LBF)
SPECIFIC IMPULSE	2362.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.5211	

MOMENTUM AND FORCES

INLET FRICTION DRAG	117.6	(LBF)
INLET MOMENTUM CHANGE	-763.5	(LBF)
COMBUSTOR FRICTION DRAG	298.6	(LBF)
COMBUSTOR STRUT DRAG	0.33	(LBF)
COMBUSTOR MOMENTUM CHANGE	805.	(LBF)
NOZZLE FRICTION DRAG	45.49	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1139.	(LBF)
NOZZLE PRESSURE INTEGRAL	1104.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-1100.	(LBF)
TOTAL STRUT DRAG	0.33	(LBF)
CAVITY FORCE	-1327.	(LBF)
CALCULATED LOAD CELL FORCE	-1247.	(LBF)
MEASURED LOAD CELL FORCE	-1245.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, -157.1, -117.0,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2989	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.183	(IN)
NOZZLE SHROUD TRAILING EDGE	73.523	(IN)
NOZZLE PLUG TRAILING EDGE	87.275	(IN)
STRUT LEADING EDGE	56.439	(IN)
STRUT TRAILING EDGE	65.039	(IN)
COMBUSTOR EXIT	65.039	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9812	
ADDITIVE DRAG COEFFICIENT	0.0009	
CAPTURE PRESSURE RECOVERY EFFICIENCY	0.1637	
DELTA PT2	0.1198	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3946	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1660	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8964	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9052	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9343	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8841	
ENTHALPY AT P0 - SUPERSONIC	-1.30	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	34.61	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0209	
EQUIVALENCE RATIO	0.705	
COMBUSTOR EFFICIENCY	1.000	
TOTAL PRESSURE RATIO	0.1418	
COMBUSTOR EFFECTIVENESS	0.8562	
INJECTOR DISCHARGE COEFFICIENTS	0.8208, 0.7002, 0.8111, 0.6910	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9497	
NOZZLE COEFFICIENT - CT	0.8718	
PROCESS EFFICIENCY	0.8764	
KINETIC ENERGY EFFICIENCY	0.8874	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.284	B
1C	44.300	
2A	48.759	D
2C	46.250	E
3A	54.049	
3B	56.234	
4	44.784	

Reading 69

t = 226.50 sec.

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5															
0.000	749.499	2971	662.1	(788)	1.2945	28.860	2574											
0.000	0.589	401	=32.9	(96)	1.3987	28.859	982	6.002	5897	1.825	0.10688	27.038	0.9877	5054	9.795	186.9		
SPIKE TIP NS		2	0 4															
0.600	18.062	2971	662.1	(788)	1.2944	28.859	2574											
0.600	16.502	2903	641.4	(768)	1.2966	28.859	2546	0.400	1019	2.081	0.10688	27.038	0.9877	4980	1.693	184.2		
WIND TUNNEL		3	0 0															
0.000	749.499	2971	662.1	(788)	1.2945	28.860	2574											
0.000	0.379	398	=33.6	(96)	1.3987	28.859	979	6.028	5900	1.825	0.10496	26.553	0.9877	4965	9.624	187.0		
SPIKE TIP NS		4	0 0															
0.600	18.062	2971	662.1	(788)	1.2944	28.859	2574											
0.600	16.373	2906	642.2	(769)	1.2965	28.859	2548	0.392	997	2.081	0.10496	26.553	0.9877	4965	1.627	187.0		
INLET THROAT		5	0 3															
40.400	268.072	2902	641.2	(767)	1.2967	28.859	2546											
40.400	16.461	1468	234.1	(363)	1.3506	28.859	1848	2.442	4513	1.889	0.94525	27.038	0.1117	4264	66.298	157.7		
INLET UPNRSK		6	0 3															
40.400	268.072	2902	641.2	(767)	1.2967	28.859	2546											
40.400	14.116	1410	218.9	(348)	1.3540	28.859	1814	2.535	4597	1.889	0.85932	27.038	0.1228	4307	61.388	159.3		
INLET DNNRSK		7	0 4															
40.400	121.358	2902	641.2	(768)	1.2967	28.859	2546											
40.400	103.727	2799	610.4	(737)	1.2999	28.859	2504	0.496	1242	1.943	0.85932	27.038	0.1228	4307	16.582	159.3		
COMBUSTOR	0	8	1 21															
40.410	229.411	2866	643.7	(790)	1.2989	27.614	2589											
40.410	14.865	1464	229.9	(378)	1.3521	27.614	1888	2.410	4550	1.968	0.94847	27.134	0.1117	4263	67.072	157.1	0.12	0.07
COMBUSTOR	0	9	2 21															
41.286	180.953	2801	647.3	(801)	1.3066	26.480	2617											
41.286	18.141	1594	276.0	(432)	1.3467	26.479	2008	2.147	4310	2.044	0.95388	27.226	0.1114	4165	63.896	153.0	0.23	0.04
COMBUSTOR	0	10	3 21															
41.296	188.946	2760	647.3	(788)	1.3045	26.437	2602											
41.296	18.179	1550	276.4	(419)	1.3493	26.436	1983	2.172	4308	2.037	0.95419	27.226	0.1114	4164	63.880	152.9	0.23	0.01
COMBUSTOR	0	11	4 21															
41.361	188.013	2753	647.0	(786)	1.3048	26.430	2599											
41.361	18.422	1553	279.2	(420)	1.3492	26.430	1985	2.161	4290	2.036	0.95425	27.226	0.1114	4156	63.622	152.7	0.23	0.00
COMBUSTOR	0	12	5 21															
41.500	184.342	2750	646.4	(785)	1.3049	26.429	2598											
41.500	19.847	1590	290.1	(431)	1.3474	26.429	2007	2.104	4223	2.038	0.95482	27.226	0.1113	4139	62.657	152.0	0.23	0.00
COMBUSTOR	0	13	6 21															
42.460	171.326	2734	641.3	(780)	1.3054	26.429	2591											
42.460	21.791	1648	307.3	(448)	1.3445	26.429	2042	2.002	4088	2.041	0.94589	27.226	0.1124	4086	60.088	150.1	0.23	0.00
COMBUSTOR	0	14	7 6															
44.081	115.246	3421	629.3	(989)	1.2728	27.222	2820											
44.081	42.604	2745	406.0	(773)	1.2956	27.226	2548	1.312	3342	2.120	0.91405	27.226	0.1163	4097	47.478	150.5	0.23	0.65
COMBUSTOR	0	15	8 3															
44.310	114.003	3447	627.2	(997)	1.2714	27.259	2827											
44.310	43.930	2794	410.9	(788)	1.2935	27.263	2567	1.262	3290	2.122	0.91272	27.226	0.1165	4094	46.664	150.4	0.23	0.68
COMBUSTOR	0	16	9 3															
44.796	111.368	3480	622.2	(1007)	1.2695	27.315	2836											
44.796	46.740	2879	421.6	(814)	1.2900	27.320	2600	1.218	3166	2.124	0.90887	27.226	0.1170	4080	44.724	149.8	0.23	0.72
COMBUSTOR	0	17	10 2															
44.800	111.324	3481	622.2	(1007)	1.2695	27.316	2836											
44.800	46.764	2880	422.0	(814)	1.2900	27.321	2600	1.217	3165	2.124	0.90867	27.226	0.1170	4080	44.696	149.8	0.23	0.72
COMBUSTOR	0	18	11 6															
46.250	104.137	3027	626.8	(952)	1.2928	24.388	2825											
46.250	42.814	2463	426.6	(757)	1.3116	24.588	2566	1.227	3150	2.268	0.86414	27.466	0.1241	4050	42.297	147.4	0.53	0.22

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	F/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 2														
46.260	104.079	3028	626.7(952)	1.2928	24.389	2825											
46.260	42.787	2464	428.4(757)	1.3116	24.489	2566	1.267	3150	2.268	0.86348	27.466	0.1242	4050	42.271	147.5	0.53	0.22
COMBUSTOR	0	20	13 4														
47.310	98.684	3122	614.2(983)	1.2880	24.517	2855											
47.310	39.927	2536	407.2(780)	1.3075	24.518	2593	1.241	3218	2.278	0.80363	27.466	0.1334	4111	40.185	149.7	0.53	0.27
COMBUSTOR	0	21	14 2														
47.321	98.671	3125	614.0(983)	1.2879	24.518	2856											
47.321	39.918	2538	407.1(780)	1.3074	24.520	2594	1.241	3218	2.279	0.80301	27.466	0.1335	4112	40.153	149.7	0.53	0.28
COMBUSTOR	0	22	15 4														
48.110	93.369	3253	605.1(1027)	1.2814	24.675	2898											
48.110	38.459	2663	394.4(821)	1.3012	24.677	2642	1.229	3247	2.292	0.74891	27.466	0.1432	4183	37.794	152.3	0.53	0.34
COMBUSTOR	0	23	16 6														
48.761	89.289	2966	610.6(1006)	1.2963	22.501	2914											
48.761	32.733	2343	376.3(775)	1.3173	22.501	2611	1.311	3424	2.424	0.69665	27.693	0.1552	4249	37.075	153.4	0.82	0.19
COMBUSTOR	0	24	17 2														
48.771	89.215	2968	610.5(1007)	1.2962	22.503	2915											
48.771	32.697	2345	376.0(775)	1.3172	22.503	2612	1.312	3426	2.424	0.69574	27.693	0.1554	4250	37.042	153.5	0.82	0.19
COMBUSTOR	0	25	18 4														
49.301	85.436	3080	605.5(1047)	1.2908	22.617	2956											
49.301	30.796	2431	359.3(805)	1.3126	22.618	2648	1.325	3509	2.437	0.65069	27.693	0.1662	4331	35.487	156.4	0.82	0.23
COMBUSTOR	0	26	19 5														
50.711	75.680	3436	593.5(1176)	1.2731	22.982	3076											
50.711	28.631	2770	333.4(924)	1.2961	22.986	2787	1.294	3607	2.473	0.55456	27.693	0.1950	4535	31.088	163.7	0.82	0.35
COMBUSTOR	0	27	20 4														
52.811	70.691	3614	578.9(1241)	1.2632	23.193	3128											
52.811	20.175	2750	238.6(912)	1.2939	23.202	2761	1.495	4126	2.489	0.45453	27.693	0.2379	4781	29.148	172.6	0.82	0.42
COMBUSTOR	0	28	21 4														
53.311	68.987	3671	575.9(1262)	1.2600	23.258	3144											
53.311	19.267	2786	225.6(924)	1.2918	23.268	2773	1.510	4186	2.494	0.43595	27.693	0.2480	4827	28.361	174.3	0.82	0.44
COMBUSTOR	0	29	22 4														
54.061	67.483	3714	571.5(1277)	1.2574	23.312	3156											
54.061	17.576	2780	200.9(921)	1.2913	23.324	2766	1.557	4306	2.498	0.41094	27.693	0.2631	4891	27.499	176.6	0.82	0.46
COMBUSTOR	0	30	23 3														
54.821	66.719	3728	567.3(1282)	1.2565	23.637	3159											
54.821	15.862	2735	174.2(904)	1.2925	23.350	2744	1.616	4435	2.499	0.38861	27.693	0.2782	4948	26.785	178.7	0.82	0.47
COMBUSTOR	0	31	24 4														
55.760	65.243	3763	562.7(1295)	1.2542	23.384	3168											
55.760	14.386	2720	148.8(897)	1.2924	23.399	2733	1.665	4551	2.503	0.36454	27.693	0.2966	5010	25.782	180.9	0.82	0.48
COMBUSTOR	0	32	25 5														
56.246	50.611	4180	560.5(1449)	1.2261	23.829	3270											
56.246	13.622	3226	155.5(1078)	1.2677	23.882	2918	1.543	4502	2.544	0.29380	27.693	0.3680	5159	20.554	186.3	0.82	0.63
COMBUSTOR	0	33	26 5														
56.301	59.656	3802	560.3(1309)	1.2516	23.430	3178											
56.301	10.368	2609	88.4(855)	1.2956	23.448	2677	1.815	4859	2.512	0.29302	27.693	0.3690	5162	22.128	186.4	0.82	0.50
COMBUSTOR	0	34	27 3														
56.441	59.554	3807	559.7(1311)	1.2513	23.436	3179											
56.441	10.258	2607	85.4(855)	1.2956	23.454	2676	1.821	4872	2.512	0.29092	27.693	0.3717	5170	22.026	186.7	0.82	0.50
COMBUSTOR	0	35	28 6														
56.521	51.999	4154	559.4(1440)	1.2281	23.803	3264											
56.521	13.190	3163	142.2(1055)	1.2706	23.852	2894	1.579	4569	2.541	0.29417	27.693	0.3675	5175	20.889	186.9	0.82	0.62
COMBUSTOR	0	36	29 3														
56.801	52.939	4129	558.3(1430)	1.2300	23.779	3258											
56.801	12.750	3104	136.0(1034)	1.2752	23.825	2872	1.612	4630	2.538	0.29320	27.693	0.3688	5189	21.095	187.4	0.82	0.61
COMBUSTOR	0	37	30 4														
57.027	54.320	4081	557.4(1413)	1.2334	23.731	3248											
57.027	12.208	3014	116.1(1000)	1.2772	23.771	2838	1.656	4699	2.535	0.29275	27.693	0.3695	5199	21.379	187.8	0.82	0.60

READING = 0069 BLOCK = 126 TIME = 226.504, MACH 6.0 P1 = 749.499 T1 = 2971.4

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	M/A	A	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	36	31	4														
57.751	58.960	3916	554.8(1351)		1.2445	23.563	3207											
57.751	10.470	2718	74.8(893)		1.2900	23.588	2719	1.802	4901	2.518	0.28811	27.693	0.3753	5224	21.942	186.7	0.82	0.54
COMBUSTOR	0	39	32	8														
58.771	111.437	5171	551.7(1078)		1.2850	22.830	2979											
58.771	5.437	1535	=46.3(485)		1.3465	22.832	2122	2.576	5470	2.415	0.28627	27.693	0.3777	5234	24.336	189.0	0.82	0.30
COMBUSTOR	0	40	33	7														
60.781	47.895	4584	546.5(1601)		1.1935	24.318	3346											
60.781	17.212	3860	194.4(1342)		1.2501	24.454	3107	1.351	4196	2.561	0.29624	27.693	0.3650	5222	19.324	188.6	0.82	0.81
COMBUSTOR	0	41	34	4														
62.201	50.996	4420	542.6(1538)		1.2077	24.140	3316											
62.201	15.787	3569	158.2(1203)		1.2465	24.234	3023	1.451	4386	2.550	0.30427	27.693	0.3553	5212	20.737	188.2	0.82	0.74
COMBUSTOR	0	42	35	5														
64.665	44.870	4698	534.6(1641)		1.1867	24.475	3359											
64.665	18.937	4105	227.4(1404)		1.2121	24.638	3168	1.237	3921	2.567	0.28841	27.693	0.3749	5193	17.572	187.5	0.82	0.87
COMBUSTOR	0	43	36	4														
65.041	40.970	4798	533.2(1679)		1.1722	24.592	3372											
65.041	19.665	4317	263.9(1485)		1.1942	24.780	3216	1.141	3670	2.576	0.26813	27.693	0.4032	5190	15.294	187.4	0.82	0.93
COMBUSTOR REGEN	44	37	21															
65.041	40.970	4935	632.9(1736)		1.1643	24.480	3416											
65.041	18.551	4434	333.1(1532)		1.1843	24.724	3250	1.192	3874	2.596	0.26813	27.693	0.4032	5250	16.141	189.6	0.82	0.93
NOZZLE AE	45	38	5															
87.277	40.970	4798	533.2(1635)		1.1722	24.592	3372											
87.277	1.221	2522	=488.4(800)		1.2812	24.928	2539	2.816	7150	2.576	0.05582	27.693	1.9371	6760	6.202	244.1	0.82	0.93
NOZZLE PO	46	39	5															
87.277	40.970	4798	533.2(1635)		1.1722	24.592	3372											
87.277	0.389	1947	=691.4(597)		1.3039	24.928	2250	3.479	7828	2.576	0.02522	27.693	4.2878	7165	3.068	258.7	0.82	0.93
NOZZLE AE REGEN	47	40	5															
87.277	40.970	4935	632.9(1736)		1.1643	24.480	3416											
87.277	1.282	2696	=424.8(863)		1.2749	24.927	2618	2.779	7275	2.596	0.05582	27.693	1.9371	6898	6.310	249.1	0.82	0.93
NOZZLE PO REGEN	48	41	5															
87.277	40.970	4935	632.9(1736)		1.1643	24.480	3416											
87.277	0.389	2066	=650.3(638)		1.2987	24.928	2313	3.464	8013	2.596	0.02432	27.693	4.4454	7340	3.029	265.0	0.82	0.93
FICTIVE COMBUSTR	60	61	0															
65.041	268.072	5073	533.2(1783)		1.1826	24.904	3461											
65.041	0.389	1314	=987.8(387)		1.3361	25.190	1862	4.687	8724	2.424	0.04207	27.693	2.5698	7765	5.704	280.4	0.82	1.00
FICTIVE NOZZLE	69	62	0															
87.277	25.387	4724	508.4(1650)		1.1689	24.576	3342											
87.277	1.532	2899	=348.8(937)		1.2671	24.926	2707	2.420	6549	2.609	0.05582	27.693	1.9371	6397	5.681	231.0	0.82	0.93

XABS	P-1P	P-0P	PCA	QUA	N-1A	Q-0P	CA-ALL	P-1S/P-S0	P-1B/PT0	P-0d/r-S0	P-0B/PT0
6.981E-01	1.050E 00	0.000	-4.401E-01	0.000	0.000	0.000	2.470E-02	2.004E 00	1.454E-03	0.000	0.000
1.836E 01	1.090E 00	0.000	-5.628E 01	0.000	0.000	0.000	1.634E 02	2.804E 00	1.454E-03	0.000	0.000
3.070E 01	2.390E 00	0.000	-1.775E 02	0.000	0.000	0.000	5.053E 02	6.148E 00	3.189E-03	0.000	0.000
3.508E 01	4.081E 00	0.000	-3.870E 02	0.000	0.000	0.000	6.804E 02	1.050E 01	5.444E-03	0.000	0.000
3.518E 01	4.092E 00	5.737F 00	-4.522E 02	0.000	0.000	0.000	6.848E 02	1.053F 01	5.460E-03	1.476E 01	7.654E-03
3.518F 01	4.093E 00	5.705F 00	-4.523E 02	0.000	0.000	0.000	6.851E 02	1.053E 01	5.461E-03	1.467E 01	7.611E-03
3.555E 01	4.135E 00	3.770E 00	-4.614E 02	0.000	0.000	0.000	7.217E 02	1.064E 01	5.517E-03	9.697E 00	5.030E-03
3.585E 01	4.108E 00	2.175F 00	-4.761F 02	-3.547E 02	-3.547E 02	0.000	7.522E 02	1.057E 01	5.482E-03	5.595E 00	2.902E-03
3.606E 01	4.090E 00	3.029E 00	-4.876E 02	-3.589E 02	-3.589E 02	0.000	7.736E 02	1.052E 01	5.457E-03	7.792E 00	4.041E-03
3.648F 01	4.046E 00	4.744F 00	-5.075E 02	-3.677E 02	-3.677E 02	0.000	8.174E 02	1.118E 01	5.799E-03	1.220E 01	6.330E-03
3.701E 01	4.465E 00	6.909E 00	-5.325E 02	-3.956E 02	-3.793E 02	-1.628E 01	8.733E 02	1.149E 01	5.957E-03	1.777E 01	9.218E-03
3.731E 01	4.332E 00	8.137E 00	-5.445E 02	-4.076E 02	-3.862E 02	-2.145E 01	9.056E 02	1.114E 01	5.780E-03	2.093E 01	1.086E-02
3.803E 01	4.015E 00	7.986E 00	-5.724E 02	-4.369E 02	-4.034E 02	-3.351E 01	9.842E 02	1.033E 01	5.357E-03	2.055E 01	1.066E-02
3.833F 01	5.717E 00	7.925E 00	-5.838E 02	-4.496E 02	-4.113E 02	-3.850E 01	1.018E 03	1.471E 01	7.628E-03	2.039E 01	1.057E-02
3.875E 01	8.089E 00	1.464E 01	-5.980E 02	-4.694E 02	-4.240E 02	-4.541E 01	1.065E 03	2.081E 01	1.079E-02	3.765E 01	1.953E-02
3.880E 01	8.477E 00	1.545F 01	-5.988E 02	-4.719E 02	-4.256E 02	-4.625E 01	1.071E 03	2.155E 01	1.118E-02	3.974E 01	2.061E-02
3.901F 01	9.560E 00	1.571F 01	-6.003E 02	-4.824E 02	-4.327E 02	-4.967E 01	1.095E 03	2.459F 01	1.276E-02	4.040E 01	2.096E-02
3.931E 01	1.385E 01	1.607E 01	-6.069E 02	-4.985E 02	-4.439E 02	-5.456E 01	1.129E 03	3.563E 01	1.848E-02	4.135E 01	2.145E-02
3.950E 01	1.655E 01	1.339E 01	-6.149E 02	-5.092E 02	-4.515E 02	-5.761E 01	1.151E 03	4.257E 01	2.208E-02	3.445E 01	1.787E-02
3.980E 01	1.719E 01	9.125E 00	-6.326E 02	-5.271E 02	-4.647E 02	-6.238E 01	1.186E 03	4.422E 01	2.294E-02	2.347E 01	1.217E-02
4.000E 01	1.762E 01	9.046E 00	-6.466E 02	-5.395E 02	-4.741E 02	-6.547E 01	1.210E 03	4.531E 01	2.350E-02	2.327E 01	1.207E-02
4.040E 01	2.077E 01	8.886E 00	-6.758E 02	-5.663E 02	-4.942E 02	-7.213E 01	1.257E 03	5.342E 01	2.771E-02	2.286E 01	1.186E-02
4.041E 01	2.085E 01	8.882E 00	-6.765E 02	-5.670E 02	-4.947E 02	-7.231E 01	1.258E 03	5.362E 01	2.781E-02	2.285E 01	1.185E-02
4.129E 01	2.775E 01	8.533E 00	-7.566E 02	-6.465E 02	-5.437E 02	-1.027E 02	1.361E 03	7.138E 01	3.702E-02	2.195E 01	1.138E-02
4.130E 01	2.783E 01	8.529E 00	-7.575E 02	-6.476E 02	-5.443E 02	-1.033E 02	1.362E 03	7.158E 01	3.713E-02	2.194E 01	1.138E-02
4.136E 01	2.834E 01	8.503F 00	-7.644E 02	-6.549E 02	-5.482E 02	-1.067E 02	1.370E 03	7.290E 01	3.781E-02	2.187E 01	1.135E-02
4.150E 01	2.944E 01	1.026E 01	-7.787E 02	-6.713E 02	-5.568E 02	-1.145E 02	1.387E 03	7.572E 01	3.928E-02	2.638E 01	1.368E-02
4.246E 01	3.122E 01	2.236E 01	-8.145E 02	-8.109E 02	-6.280E 02	-1.829E 02	1.502E 03	5.460E 01	2.832E-02	5.751E 01	2.983E-02
4.408E 01	4.242E 01	4.279E 01	-7.770E 02	-1.139E 03	-8.168E 02	-3.217E 02	1.698E 03	1.091E 02	5.660E-02	1.101E 02	5.709E-02
4.431E 01	4.542E 01	4.244E 01	-7.765E 02	-1.195E 03	-8.514E 02	-3.431E 02	1.726E 03	1.168E 02	6.060E-02	1.092E 02	5.663E-02
4.480E 01	5.177E 01	4.171E 01	-7.833E 02	-1.330E 03	-9.311E 02	-3.987E 02	1.785E 03	1.332E 02	6.907E-02	1.073E 02	5.565E-02
4.480E 01	5.182E 01	4.170E 01	-7.833E 02	-1.331E 03	-9.319E 02	-3.992E 02	1.785E 03	1.333E 02	6.915E-02	1.073E 02	5.564E-02
4.625E 01	4.611E 01	3.952E 01	-7.506E 02	-1.791E 03	-1.173E 03	-6.184E 02	1.964E 03	1.186E 02	6.153E-02	1.016E 02	5.272E-02
4.626E 01	4.607E 01	3.950E 01	-7.498E 02	-1.794E 03	-1.174E 03	-6.201E 02	1.965E 03	1.185E 02	6.147E-02	1.016E 02	5.270E-02
4.731E 01	4.194E 01	3.792E 01	-6.734E 02	-2.158E 03	-1.336E 03	-8.025E 02	2.095E 03	1.079E 02	5.595E-02	9.753E 01	5.059E-02
4.732E 01	4.194E 01	3.790E 01	-6.725E 02	-2.142E 03	-1.337E 03	-8.044E 02	2.096E 03	1.079E 02	5.595E-02	9.749E 01	5.057E-02
4.811E 01	4.185E 01	3.507E 01	-5.912E 02	-2.387E 03	-1.452E 03	-9.342E 02	2.195E 03	1.076E 02	5.584E-02	9.021E 01	4.679E-02
4.876E 01	3.273E 01	3.273E 01	-4.889E 02	-2.572E 03	-1.543E 03	-1.030E 03	2.276E 03	8.420E 01	4.367E-02	8.420E 01	4.367E-02
4.877E 01	3.270E 01	3.270E 01	-4.872E 02	-2.575E 03	-1.544E 03	-1.031E 03	2.277E 03	8.411E 01	4.363E-02	8.411E 01	4.363E-02
4.930E 01	3.080E 01	3.080E 01	-3.995E 02	-2.716E 03	-1.615E 03	-1.101E 03	2.344E 03	7.922E 01	4.109E-02	7.922F 01	4.109E-02
5.071E 01	2.863E 01	2.863E 01	-1.799E 02	-3.047E 03	-1.790E 03	-1.258E 03	2.521E 03	7.365E 01	3.820E-02	7.365E 01	3.820E-02
5.281E 01	2.017E 01	2.017E 01	8.883E 01	-3.451E 03	-2.014E 03	-1.438E 03	2.788E 03	5.190E 01	2.692E-02	5.190E 01	2.692E-02
5.331E 01	1.927E 01	1.927E 01	1.401E 02	-3.536E 03	-2.061E 03	-1.475E 03	2.852E 03	4.956E 01	2.571E-02	4.956E 01	2.571E-02
5.406E 01	1.758E 01	1.758E 01	2.114E 02	-3.657E 03	-2.127E 03	-1.530E 03	2.947E 03	4.521E 01	2.345E-02	4.521E 01	2.345E-02
5.482E 01	1.586E 01	1.586E 01	2.762E 02	-3.771E 03	-2.189E 03	-1.582E 03	3.045E 03	4.080E 01	2.116E-02	4.080E 01	2.116E-02
5.576E 01	1.439E 01	1.439E 01	3.474E 02	-3.901E 03	-2.258E 03	-1.643E 03	3.165E 03	3.701E 01	1.919E-02	3.701E 01	1.919E-02
5.625E 01	1.362E 01	1.362E 01	4.992E 02	-3.960E 03	-2.288E 03	-1.672E 03	3.209E 03	3.504E 01	1.818E-02	3.504E 01	1.818E-02
5.630E 01	7.200E 00	1.354E 01	5.030E 02	-3.966E 03	-2.291E 03	-1.676E 03	3.216E 03	1.852E 01	9.606E-03	3.482E 01	1.806E-02
5.644E 01	7.200E 00	1.332E 01	5.118E 02	-3.982E 03	-2.298E 03	-1.684E 03	3.234E 03	1.852E 01	9.606E-03	3.425E 01	1.777E-02
5.652E 01	1.319E 01	1.319E 01	5.171E 02	-3.991E 03	-2.302E 03	-1.689E 03	3.245E 03	3.393E 01	1.760E-02	3.393E 01	1.760E-02
5.680E 01	1.275E 01	1.275F 01	5.340E 02	-4.021E 03	-2.316E 03	-1.705E 03	3.280E 03	3.280E 01	1.701E-02	3.280E 01	1.701E-02
5.703E 01	1.221E 01	1.221E 01	5.462E 02	-4.046E 03	-2.327E 03	-1.718E 03	3.309E 03	3.140E 01	1.629E-02	3.140E 01	1.629E-02
5.775E 01	1.047E 01	1.047F 01	5.769E 02	-4.119E 03	-2.358E 03	-1.761E 03	3.402E 03	2.693E 01	1.397E-02	2.693E 01	1.397E-02
5.877E 01	5.437E 00	5.437F 00	5.953E 02	-4.205F 03	-2.394E 03	-1.811E 03	3.532E 03	1.399E 01	7.255E-03	1.399E 01	7.255E-03
6.078E 01	1.721E 01	1.721E 01	5.980E 02	-4.349E 03	-2.442E 03	-1.907E 03	3.790E 03	4.428E 01	2.297E-02	4.428E 01	2.297E-02
6.220E 01	1.579E 01	1.579E 01	5.980E 02	-4.457E 03	-2.475E 03	-1.982E 03	3.972E 03	4.061E 01	2.106E-02	4.061E 01	2.106E-02

XABS	P-IB	P-OB	PDA	QDX	Q-IB	Q-OB	CA-ALL	P-IB/PS0	P-IB/P10	P-OB/PS0	P-OB/P10
6.466E 01	1.894E 01	1.894E 01	5.980E 02	-4.676E 03	-2.560E 03	-2.116E 03	4.269E 03	4.671E 01	2.527E-02	4.671E 01	2.527E-02
6.504E 01	1.991E 01	1.942E 01	5.980E 02	-4.717E 03	-2.576E 03	-2.141E 03	4.337E 03	5.122E 01	2.657E-02	4.995E 01	2.591E-02
6.508E 01	1.991E 01	1.947E 01	5.980F 02	-4.721E 03	-2.578E 03	-2.143F 03	4.342E 03	5.122E 01	2.657E-02	5.008E 01	2.598E-02
6.528E 01	1.885E 01	1.972F 01	5.980E 02	-4.742E 03	-2.587E 03	-2.155E 03	4.368E 03	4.848E 01	2.515E-02	5.074E 01	2.632E-02
6.694E 01	1.001E 01	9.533E 0	7.599E 02	-4.891E 03	-2.647E 03	-2.244E 03	4.583E 03	2.575E 01	1.336E-02	2.451E 01	1.272E-02
6.761E 01	7.251E 00	9.217E 00	9.420E 02	-4.942E 03	-2.665E 03	-2.277E 03	4.665E 03	1.865E 01	9.674E-03	2.371E 01	1.230E-02
6.838E 01	4.060E 00	7.015E 00	1.129E 03	-4.999E 03	-2.681E 03	-2.318E 03	4.760E 03	1.049E 01	5.444E-03	1.804E 01	9.359E-03
6.910E 01	3.176E 00	4.955E 00	1.250E 03	-5.055E 03	-2.693E 03	-2.362E 03	4.848E 03	8.169E 00	4.237E-03	1.275E 01	6.611E-03
6.971E 01	2.410E 00	4.060E 00	1.328E 03	-5.100E 03	-2.702E 03	-2.399E 03	4.922E 03	6.199E 00	3.215E-03	1.044E 01	5.416E-03
7.066E 01	1.701E 00	2.665E 00	1.412E 03	-5.156E 03	-2.712E 03	-2.444F 03	5.036E 03	4.375E 00	2.269E-03	6.855E 00	3.556E-03
7.109E 01	1.380E 00	2.477E 00	1.440E 03	-5.176E 03	-2.715E 03	-2.461E 03	5.088E 03	3.550E 00	1.841E-03	6.373E 00	3.305E-03
7.262E 01	1.455E 00	1.810F 00	1.523E 03	-5.234E 03	-2.726E 03	-2.508E 03	5.273E 03	3.737E 00	1.938E-03	4.656F 00	2.415E-03
7.277E 01	1.460E 00	1.698E 00	1.530E 03	-5.239E 03	-2.727E 03	-2.512E 03	5.290E 03	3.756E 00	1.948E-03	4.369E 00	2.266E-03
7.352E 01	1.364E 00	1.140E 00	1.578E 03	-5.268E 03	-2.732E 03	-2.535E 03	5.374E 03	3.510E 00	1.820E-03	2.932E 00	1.521E-03
7.352E 01	1.364E 00	1.137F 00	1.581E 03	-5.268E 03	-2.732E 03	-2.536E 03	5.375E 03	3.508E 00	1.820E-03	2.925E 00	1.517E-03
7.485F 01	1.195E 00	0.000	1.608E 03	-5.324E 03	-2.740E 03	-2.583E 03	5.427E 03	3.074E 00	1.594E-03	0.000	0.000
7.770E 01	2.405E 00	0.000	1.681E 03	-5.359E 03	-2.756E 03	-2.583E 03	5.525E 03	6.341E 00	3.289E-03	0.000	0.000
8.160E 01	1.600E 00	0.000	1.768E 03	-5.357E 03	-2.774E 03	-2.583E 03	5.630E 03	4.116E 00	2.135E-03	0.000	0.000
8.441E 01	1.380E 00	0.000	1.801E 03	-5.374E 03	-2.791E 03	-2.583F 03	5.684E 03	3.550E 00	1.841E-03	0.000	0.000
8.727E 01	2.760E 00	0.000	1.851E 03	-5.402E 03	-2.819E 03	-2.583E 03	5.707E 03	7.099E 00	3.682E-03	0.000	0.000
8.728E 01	2.763E 00	0.000	1.851E 03	-5.402E 03	-2.819E 03	-2.583E 03	5.707E 03	7.107E 00	3.686E-03	0.000	0.000

X	DRAG	CURAG	CF	MC
4.040E 01	1.163E 02	1.163E 02	2.239E-03	4.445E-02
4.041E 01	1.476E-01	1.164E 02	2.519E-03	3.966E-02
4.129E 01	1.750E 01	1.339E 02	2.640E-03	4.560E-02
4.130E 01	1.891E-01	1.341E 02	2.430E-03	4.845E-02
4.136E 01	1.192E 00	1.353E 02	2.403E-03	4.926E-02
4.150E 01	2.525E 00	1.378E 02	2.417E-03	5.167E-02
4.246E 01	1.714E 01	1.550E 02	2.443E-03	5.345E-02
4.408E 01	2.632E 01	1.813E 02	2.548E-03	7.097E-02
4.431E 01	3.580E 00	1.849E 02	2.917E-03	6.801E-02
4.480E 01	7.925E 00	1.928E 02	2.931E-03	6.805E-02
4.480E 01	6.279E-02	1.929E 02	2.952E-03	6.813E-02
4.625E 01	2.386E 01	2.167E 02	3.206E-03	6.111E-02
4.626E 01	1.595E-01	2.169E 02	2.841E-03	6.931E-02
4.731E 01	1.514E 01	2.320E 02	2.801E-03	6.646E-02
4.732E 01	1.471E-01	2.322E 02	2.801E-03	6.646E-02
4.811E 01	1.081E 01	2.430E 02	2.837E-03	6.328E-02
4.876E 01	9.074E 00	2.521E 02	3.115E-03	5.423E-02
4.877E 01	1.375E-01	2.522E 02	2.819E-03	6.006E-02
4.930E 01	6.731E 00	2.589E 02	2.774E-03	5.801E-02
5.071E 01	1.636E 01	2.753E 02	2.761E-03	5.391E-02
5.281E 01	2.230E 01	2.976E 02	2.799E-03	4.191E-02
5.331E 01	5.201E 00	3.028E 02	2.878E-03	3.953E-02
5.406E 01	7.694E 00	3.105E 02	2.872E-03	3.679E-02
5.482E 01	7.578E 00	3.181E 02	2.863E-03	3.423E-02
5.576E 01	9.045E 00	3.271E 02	2.839E-03	3.196E-02
5.625E 01	2.881E 00	3.300E 02	2.810E-03	2.900E-02
5.630E 01	4.349E-01	3.304E 02	2.975E-03	2.327E-02
5.644E 01	1.129E 00	3.315E 02	2.779E-03	2.444E-02
5.652E 01	6.659E-01	3.322E 02	3.284E-03	2.405E-02
5.680E 01	2.337E 00	3.345E 02	2.958E-03	2.650E-02
5.703E 01	1.804E 00	3.363E 02	2.934E-03	2.596E-02
5.775E 01	5.834E 00	3.422E 02	2.881E-03	2.385E-02
5.877E 01	8.557E 00	3.507E 02	2.777E-03	1.563E-02
6.078E 01	1.498E 01	3.657E 02	2.545E-03	3.626E-02
6.220E 01	1.035E 01	3.761E 02	3.126E-03	2.831E-02
6.466E 01	1.891E 01	3.950E 02	3.119E-03	3.047E-02
6.504E 01	2.539E 00	3.975E 02	3.288E-03	2.858E-02
6.508E 01	2.627E-01	3.978E 02	3.404E-03	2.890E-02
6.528E 01	1.340E 00	3.991E 02	3.399E-03	2.872E-02
6.694E 01	1.127E 01	4.104E 02	3.279E-03	2.066E-02
6.761E 01	4.146E 00	4.145E 02	3.252E-03	1.882E-02
6.838E 01	4.359E 00	4.189E 02	3.192E-03	1.458E-02
6.910E 01	3.484E 00	4.224E 02	3.145E-03	1.177E-02
6.971E 01	2.571E 00	4.249E 02	3.115E-03	1.001E-02
7.066E 01	3.375E 00	4.283E 02	3.064E-03	7.510E-03
7.109E 01	1.321E 00	4.296E 02	3.046E-03	6.845E-03
7.262E 01	4.292E 00	4.339E 02	3.019E-03	6.022E-03
7.277E 01	3.774E-01	4.343E 02	3.014E-03	5.874E-03
7.352E 01	1.708E 00	4.360E 02	2.978E-03	4.915E-03
7.352E 01	3.036E-03	4.360E 02	2.978E-03	4.909E-03
7.485E 01	9.569E-01	4.370E 02	2.964E-03	4.729E-03
7.770E 01	2.255E 00	4.392E 02	3.045E-03	6.113E-03
8.160E 01	2.588E 00	4.416E 02	2.966E-03	5.853E-03
8.441E 01	1.119E 00	4.429E 02	2.933E-03	5.187E-03
8.727E 01	5.520E-01	4.435E 02	3.013E-03	6.670E-03
8.728E 01	0.000	4.435E 02	3.013E-03	6.677E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1541.	(LBF)
MEASURED THRUST	1305.	(LBF)
CALCULATED SPECIFIC IMPULSE	2048.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1943.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.5547	
MEASURED THRUST COEFFICIENT	0.5205	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	6528.	(LBF)
NET THRUST	1472.	(LBF)
SPECIFIC IMPULSE	2248.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.5868	

MOMENTUM AND FORCES

INLET FRICTION DRAG	116.3	(LBF)
INLET MOMENTUM CHANGE	-792.1	(LBF)
COMBUSTOR FRICTION DRAG	281.3	(LBF)
COMBUSTOR STRUT DRAG	-0.29	(LBF)
COMBUSTOR MOMENTUM CHANGE	927.	(LBF)
NOZZLE FRICTION DRAG	45.98	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1207.	(LBF)
NOZZLE PRESSURE INTEGRAL	1253.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-1430.	(LBF)
TOTAL STRUT DRAG	-0.29	(LBF)
CAVITY FORCE	-1336.	(LBF)
CALCULATED LOAD CELL FORCE	-1425.	(LBF)
MEASURED LOAD CELL FORCE	-1461.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, -161.5, -120.0,

STATIONS

NOMINAL COWL LEADING EDGE	54.884	(IN)
SPIKE TRANSLATION	0.5009	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.185	(IN)
NOZZLE SHROUD TRAILING EDGE	73.525	(IN)
NOZZLE PLUG TRAILING EDGE	87.277	(IN)
STRUT LEADING EDGE	56.041	(IN)
STRUT TRAILING EDGE	65.041	(IN)
COMBUSTOR EXIT	65.041	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9877	
ADDITIVE DRAG COEFFICIENT	0.0001	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1596	
DELTA PT2	0.1200	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3577	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1619	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8907	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9050	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9279	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8819	
ENTHALPY AT P0 - SUPERSONIC	-3.68	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	28.24	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0242	
EQUIVALENCE RATIO	0.817	
COMBUSTOR EFFICIENCY	0.929	
TOTAL PRESSURE RATIO	0.1528	
COMBUSTOR EFFECTIVENESS	0.8285	

INJECTOR DISCHARGE COEFFICIENTS 0.8141, 0.7041, 0.7999, 0.6919

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9464	
NOZZLE COEFFICIENT - CT	0.8660	
PROCESS EFFICIENCY	0.8684	
KINETIC ENERGY EFFICIENCY	0.8793	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.286	B
1C	44.300	
2A	48.761	D
2C	46.250	E
3A	54.051	
3B	56.236	
4	44.786	

Reading 69

t = 256.20 sec.

READING = 0069 BLOCK = 159 TIME = 254.204 MACH 6.0 PI = 749.249 TT = 3049.0 3-3-75 PAGE 1

RAMJET PERFORMANCE

330

SUMMARY REPORT

	P	T		GAMMA	MOLWT	SONV	MACH	VEL	S	M/A	W	A/AC	MOMTM	R	IVAC	PHT	ETAC
WIND TUNNEL		1	0 5														
0.000	749.249	3049	685.7(811)	1.2921	28.860	2605											
0.000	0.401	416	=28.8(101)	1.3989	28.859	1003	5.960	5979	1.833	0.10732	26.978	0.9815	5114	9.972	189.6		
SPIKE TIP NS		2	0 3														
0.600	18.025	3049	685.7(811)	1.2919	28.859	2605											
0.600	16.189	2976	663.4(789)	1.2943	28.859	2576	0.410	1056	2.089	0.10732	26.978	0.9815	4955	1.761	183.7		
WIND TUNNEL		3	0 0														
0.000	749.249	3049	685.7(811)	1.2921	28.860	2605											
0.000	0.399	411	=30.4(99)	1.3988	28.859	995	6.015	5986	1.833	0.10321	25.945	0.9815	4922	9.600	189.7		
SPIKE TIP NS		4	0 0														
0.600	18.025	3049	685.7(811)	1.2919	28.859	2605											
0.600	16.346	2982	665.4(791)	1.2941	28.859	2578	0.391	1008	2.089	0.10321	25.945	0.9815	4922	1.617	189.7		
INLET THROAT		5	0 3														
40.400	294.334	2987	666.7(792)	1.2941	28.859	2580											
40.400	15.930	1468	234.1(363)	1.3506	28.859	1848	2.518	4653	1.891	0.94314	26.978	0.1117	4357	68.196	161.5		
INLET UPNRSK		6	0 3														
40.400	294.334	2987	666.7(792)	1.2941	28.859	2580											
40.400	13.685	1411	219.0(348)	1.3539	28.859	1814	2.609	4733	1.891	0.85740	26.978	0.1228	4399	63.066	163.1		
INLET DNNRSK		7	0 4														
40.400	124.301	2987	666.7(792)	1.2941	28.859	2580											
40.400	106.757	2885	636.0(762)	1.2972	28.859	2539	0.489	1241	1.950	0.85740	26.978	0.1228	4399	16.530	163.1		
COMBUSTOR	0	8	1 21														
40.410	253.715	2947	668.6(813)	1.2963	27.660	2620											
40.410	14.951	1475	232.9(381)	1.3514	27.660	1893	2.467	4669	1.967	0.94623	27.070	0.1117	4356	68.662	160.9	0.11	0.07
COMBUSTOR	0	9	2 21														
41.286	198.892	2880	671.2(823)	1.3000	26.575	2646											
41.286	18.445	1611	280.8(435)	1.3057	26.575	2014	2.194	4420	2.040	0.95147	27.157	0.1114	4257	65.355	156.8	0.22	0.04
COMBUSTOR	0	10	3 21														
41.296	207.308	2841	671.2(811)	1.3016	26.534	2632											
41.296	18.484	1570	281.2(424)	1.3082	26.534	1992	2.218	4417	2.033	0.95178	27.157	0.1114	4256	65.339	156.7	0.22	0.01
COMBUSTOR	0	11	4 21														
41.361	206.020	2834	671.0(809)	1.3021	26.528	2630											
41.361	18.744	1574	284.2(425)	1.3080	26.528	1994	2.206	4399	2.033	0.95184	27.157	0.1114	4248	65.070	156.4	0.22	0.00
COMBUSTOR	0	12	5 21														
41.500	201.248	2832	670.4(808)	1.3022	26.527	2629											
41.500	20.221	1613	295.9(436)	1.3061	26.527	2017	2.146	4329	2.035	0.95240	27.157	0.1113	4231	64.073	155.8	0.22	0.00
COMBUSTOR	0	13	6 21														
42.460	187.224	2817	665.6(804)	1.3027	26.527	2622											
42.460	20.967	1649	306.4(447)	1.3043	26.526	2038	2.080	4240	2.038	0.94350	27.157	0.1124	4182	62.165	154.0	0.22	0.00
COMBUSTOR	0	14	7 6														
44.081	119.320	3618	654.3(1047)	1.2638	27.460	2877											
44.081	42.818	2898	413.4(816)	1.2887	27.467	2600	1.335	3472	2.124	0.91173	27.157	0.1163	4206	49.193	154.9	0.22	0.79
COMBUSTOR	0	15	8 3														
44.310	117.396	3670	652.4(1063)	1.2610	27.529	2891											
44.310	45.073	2989	422.9(844)	1.2848	27.537	2633	1.287	3389	2.127	0.91041	27.157	0.1165	4205	47.944	154.8	0.22	0.85
COMBUSTOR	0	16	9 4														
44.796	114.149	3756	647.6(1089)	1.2561	27.648	2913											
44.796	49.855	3155	442.3(895)	1.2777	27.660	2692	1.191	3205	2.132	0.90657	27.157	0.1170	4199	45.159	154.6	0.22	0.94
COMBUSTOR	0	17	10 2														
44.800	114.104	3756	647.6(1090)	1.2561	27.650	2913											
44.800	49.896	3157	442.5(896)	1.2776	27.661	2692	1.190	3204	2.132	0.90637	27.157	0.1170	4199	45.124	154.6	0.22	0.95
COMBUSTOR	0	18	11 6														
46.250	106.490	3373	659.5(1082)	1.2778	24.363	2966											
46.250	52.998	2888	461.5(909)	1.2942	24.365	2762	1.080	2984	2.317	0.86321	27.437	0.1241	4229	40.026	154.1	0.57	0.32

READING = 0069 BLOCK = 159 TIME = 254.204 MACH 0.0 PT = 749.249 TT = 5049.0

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	A	A/AT	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 2														
46.260	106.443	3376	659.4(1083)	1.2777	24.366	2967											
46.260	53.020	2891	481.5(910)	1.2940	24.368	2763	1.080	2983	2.317	0.66255	27.437	0.1242	4230	34.986	154.2	0.57	0.32
COMBUSTOR	0	20	13 4														
47.310	102.523	3674	647.3(1184)	1.2620	24.710	3054											
47.310	55.266	3222	476.2(1022)	1.2782	24.717	2878	1.017	2926	2.337	0.80276	27.437	0.1334	4385	36.509	159.8	0.57	0.46
COMBUSTOR	0	21	14 2														
47.321	102.486	3678	647.2(1186)	1.2618	24.714	3055											
47.321	55.336	3227	476.3(1023)	1.2779	24.722	2880	1.015	2924	2.338	0.80214	27.437	0.1335	4386	36.452	159.9	0.57	0.46
COMBUSTOR	0	22	15 4														
48.110	98.742	3939	638.7(1275)	1.2469	25.023	3124											
48.110	52.842	3470	454.9(1105)	1.2648	25.040	2952	1.027	3032	2.353	0.74810	27.437	0.1432	4524	35.250	164.9	0.57	0.59
COMBUSTOR	0	23	16 6														
48.761	94.094	3580	650.0(1264)	1.2683	22.404	3175											
48.761	42.495	3012	418.1(1040)	1.2882	22.409	2934	1.161	3407	2.523	0.69705	27.709	0.1552	4623	36.905	166.9	0.91	0.34
COMBUSTOR	0	24	17 2														
48.771	94.049	3582	649.9(1264)	1.2682	22.406	3175											
48.771	42.360	3012	417.1(1040)	1.2882	22.411	2934	1.163	3413	2.523	0.69614	27.709	0.1554	4625	36.923	166.9	0.91	0.34
COMBUSTOR	0	25	18 4														
49.301	92.584	3633	645.1(1283)	1.2654	22.466	3190											
49.301	35.162	2944	364.2(1013)	1.2896	22.473	2898	1.293	3749	2.527	0.65106	27.709	0.1662	4725	37.930	170.5	0.91	0.36
COMBUSTOR	0	26	19 5														
50.711	83.214	4015	633.6(1428)	1.2431	22.870	3294											
50.711	31.312	3290	324.2(1138)	1.2715	22.894	3014	1.306	3935	2.557	0.55488	27.709	0.1950	4952	33.930	178.7	0.91	0.48
COMBUSTOR	0	27	20 4														
52.811	77.335	4243	619.5(1514)	1.2276	23.140	3345											
52.811	22.612	3332	220.9(1149)	1.2657	23.189	3007	1.485	4466	2.573	0.45479	27.709	0.2379	5224	31.565	188.5	0.91	0.57
COMBUSTOR	0	28	21 3														
53.311	77.765	4213	616.5(1502)	1.2296	23.116	3338											
53.311	20.275	3228	188.4(1108)	1.2702	23.163	2965	1.561	4628	2.571	0.43620	27.709	0.2480	5274	31.373	190.3	0.91	0.56
COMBUSTOR	0	29	22 4														
54.061	76.378	4247	612.2(1515)	1.2270	23.162	3345											
54.061	18.437	3208	159.9(1099)	1.2702	23.214	2953	1.611	4758	2.573	0.41118	27.709	0.2631	5340	30.401	192.7	0.91	0.57
COMBUSTOR	0	30	23 3														
54.821	75.892	4247	608.2(1515)	1.2268	23.172	3344											
54.821	16.575	3138	128.8(1073)	1.2726	23.225	2924	1.675	4898	2.573	0.38883	27.709	0.2782	5399	29.595	194.9	0.91	0.58
COMBUSTOR	0	31	24 4														
55.760	73.656	4302	603.6(1536)	1.2227	23.241	3354											
55.760	15.277	3156	104.6(1078)	1.2708	23.304	2925	1.708	4997	2.577	0.36475	27.709	0.2966	5464	28.325	197.2	0.91	0.60
COMBUSTOR	0	32	25 5														
56.246	57.220	4760	601.5(1711)	1.1838	23.742	3435											
56.246	14.605	3801	114.6(1319)	1.2318	23.948	3118	1.583	4936	2.615	0.29396	27.709	0.3680	5628	22.551	203.1	0.91	0.78
COMBUSTOR	0	33	26 5														
56.301	66.942	4366	601.3(1560)	1.2172	23.315	3366											
56.301	11.239	3079	38.8(1047)	1.2724	23.393	2886	1.839	5306	2.588	0.29319	27.709	0.3690	5631	24.174	203.2	0.91	0.62
COMBUSTOR	0	34	27 3														
56.441	66.740	4373	600.7(1563)	1.2166	23.324	3368											
56.441	11.143	3082	35.8(1048)	1.2722	23.404	2886	1.842	5317	2.589	0.29108	27.709	0.3717	5640	24.051	203.5	0.91	0.63
COMBUSTOR	0	35	28 21														
56.521	51.908	5110	600.4(1847)	1.1527	24.125	3484											
56.521	14.225	4349	101.0(1527)	1.1768	24.594	3216	1.554	4999	2.626	0.29434	27.709	0.3675	5648	22.867	203.7	0.91	1.00
COMBUSTOR	0	36	29 21														
56.801	52.121	5109	599.3(1847)	1.1528	24.127	3484											
56.801	13.837	4328	88.9(1518)	1.1780	24.603	3210	1.574	5054	2.626	0.29337	27.709	0.3688	5659	23.041	204.2	0.91	1.00
COMBUSTOR	0	37	30 21														
57.027	52.041	5108	598.5(1846)	1.1528	24.128	3483											
57.027	13.072	4293	68.9(1504)	1.1799	24.618	3198	1.609	5148	2.626	0.29292	27.709	0.3693	5670	23.433	204.6	0.91	1.00

READING = 0069 BLOCK = 159 TIME = 256.204 MACH 6.0 PT = 749.249 TT = 3049.0

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	∞	A/AC	MONTH	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
57.751	53.292	5101	595.8(1804)	1.1526	24.127	3461											
57.751	10.620	4182	7.7(145R)	1.1860	24.659	3162	1.716	5425	2.628	0.28827	27.709	0.3753	5693	24.304	205.5	0.91	1.00
COMBUSTOR	0	39	32 21														
58.771	40.622	5071	592.8(1832)	1.1508	24.102	3470											
58.771	5.887	3937	-116.1(135R)	1.1993	24.722	3082	1.933	5956	2.645	0.28644	27.709	0.3777	5699	26.511	205.7	0.91	1.00
COMBUSTOR	0	40	33 21														
60.781	54.176	5101	587.6(1843)	1.1536	24.148	3481											
60.781	16.837	4410	134.2(1552)	1.1748	24.573	3238	1.471	4763	2.620	0.29641	27.709	0.3850	5676	21.939	204.8	0.91	1.00
COMBUSTOR	0	41	34 21														
62.201	54.955	5099	583.8(1842)	1.1539	24.155	3480											
62.201	16.050	4368	108.8(1535)	1.1772	24.594	3224	1.512	4875	2.618	0.30444	27.709	0.3953	5659	23.065	204.2	0.91	1.00
COMBUSTOR	0	42	35 200														
64.665	51.648	5083	576.0(1835)	1.1537	24.157	3474											
64.665	18.230	4469	170.1(1577)	1.1717	24.543	3257	1.384	4506	2.622	0.28857	27.709	0.3749	5631	20.208	203.2	0.91	1.00
COMBUSTOR	0	43	36 200														
65.041	47.717	5071	574.6(1831)	1.1530	24.149	3470											
65.041	19.594	4553	224.6(1612)	1.1670	24.491	3284	1.274	4184	2.628	0.26828	27.709	0.4032	5627	17.445	203.1	0.91	1.00
COMBUSTOR REGEN		44	37 3														
65.041	47.717	5150	648.2(1865)	1.1501	24.045	3500											
65.041	17.121	4564	240.3(1617)	1.1641	24.462	3286	1.375	4518	2.643	0.26828	27.709	0.4032	5659	18.835	204.2	0.91	1.00
NOZZLE AE		45	38 5														
87.277	47.717	5071	574.6(1791)	1.1530	24.149	3470											
87.277	1.301	2849	-583.1(933)	1.2642	24.824	2686	2.834	7611	2.628	0.05585	27.709	1.9371	7200	6.606	259.9	0.91	1.00
NOZZLE PO		46	39 5														
87.277	47.717	5071	574.6(1791)	1.1530	24.149	3470											
87.277	0.401	2209	-820.2(698)	1.2877	24.826	2387	3.501	8354	2.628	0.02439	27.709	4.4358	7651	3.166	276.1	0.91	1.00
NOZZLE AE REGEN		47	40 5														
87.277	47.717	5150	648.2(1865)	1.1501	24.045	3500											
87.277	1.346	2978	-533.2(982)	1.2589	24.822	2740	2.806	7689	2.643	0.05585	27.709	1.9371	7290	6.673	263.1	0.91	1.00
NOZZLE PO REGEN		48	41 5														
87.277	47.717	5150	648.2(1865)	1.1501	24.045	3500											
87.277	0.401	2299	-787.8(730)	1.2842	24.826	2431	3.486	8477	2.643	0.02378	27.709	4.5501	7768	3.132	280.3	0.91	1.00
FICTIVE COMBUSTR		68	61 0														
65.041	294.334	5273	574.6(1910)	1.1704	24.372	3548											
65.041	0.401	1427	-1087.8(430)	1.3268	24.826	1947	4.684	9121	2.479	0.04121	27.709	2.6250	8125	5.841	293.2	0.91	1.00
FICTIVE NOZZLE		69	62 0														
87.277	32.746	5001	551.3(1802)	1.1506	24.131	3443											
87.277	1.538	3153	-463.8(1049)	1.2504	24.817	2810	2.536	7127	2.654	0.05585	27.709	1.9371	6901	6.186	249.1	0.91	1.00

XABS	P-IB	P-OB	PDA	UOX	U-IB	U-OB	CA-ALL	P-TB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.085E 00	0.000	-4.397E-01	0.000	0.000	0.000	2.470E-02	2.703E 00	1.448E-03	0.000	0.000
1.836E 01	1.085E 00	0.000	-3.611E 01	0.000	0.000	0.000	1.634E 02	2.703E 00	1.448E-03	0.000	0.000
3.070E 01	2.455E 00	0.000	-1.796E 02	0.000	0.000	0.000	5.053E 02	6.117E 00	3.277E-03	0.000	0.000
3.508E 01	4.031E 00	0.000	-3.898E 02	0.000	0.000	0.000	6.804E 02	1.004E 01	5.380E-03	0.000	0.000
3.518E 01	4.069E 00	5.915E 00	-4.567E 02	0.000	0.000	0.000	6.848E 02	1.014E 01	5.431E-03	1.474E 01	7.895E-03
3.518F 01	4.072E 00	5.882F 00	-4.567E 02	0.000	0.000	0.000	6.851F 02	1.015F 01	5.434E-03	1.466F 01	7.851E-03
3.555F 01	4.215E 00	3.877E 00	-4.654E 02	0.000	0.000	0.000	7.217E 02	1.050F 01	5.626E-03	9.661E 00	5.175E-03
3.585E 01	4.124E 00	2.225F 00	-4.802E 02	-3.253E 02	-3.253E 02	0.000	7.522E 02	1.027F 01	5.504E-03	5.544F 00	2.970E-03
3.606E 01	4.060E 00	3.068F 00	-4.915E 02	-3.292F 02	-3.292E 02	0.000	7.736E 02	1.012F 01	5.419E-03	7.645E 00	4.095E-03
3.648E 01	4.306E 00	4.742E 00	-5.110E 02	-3.373E 02	-3.373E 02	0.000	8.174E 02	1.073E 01	5.747E-03	1.187E 01	6.356E-03
3.701E 01	4.460E 00	6.899F 00	-5.358E 02	-3.610E 02	-3.479E 02	-1.311F 01	8.733E 02	1.111E 01	5.953E-03	1.719F 01	9.208E-03
3.731E 01	4.318E 00	8.112F 00	-5.477E 02	-3.715E 02	-3.542E 02	-1.728E 01	9.056E 02	1.076F 01	5.764E-03	2.021E 01	1.083E-02
3.803F 01	3.980E 00	1.355F 01	-5.635E 02	-3.970F 02	-3.700E 02	-2.698F 01	9.842E 02	9.917E 00	5.312E-03	3.376E 01	1.809E-02
3.833F 01	5.580E 00	1.582F 01	-5.625E 02	-4.083E 02	-3.773E 02	-3.099F 01	1.01AE 03	1.390E 01	7.447E-03	3.943E 01	2.112E-02
3.875E 01	7.808E 00	1.545E 01	-5.648E 02	-4.254E 02	-3.889E 02	-3.654F 01	1.065E 03	1.945E 01	1.042E-02	3.849E 01	2.062E-02
3.880E 01	8.078E 00	1.540F 01	-5.653E 02	-4.276E 02	-3.904E 02	-3.721E 01	1.071E 03	2.013E 01	1.078E-02	3.837E 01	2.055E-02
3.901E 01	9.190E 00	1.566F 01	-5.661E 02	-4.369E 02	-3.969E 02	-3.995E 01	1.095E 03	2.290E 01	1.227E-02	3.901E 01	2.090E-02
3.931E 01	1.360E 01	1.602E 01	-5.719E 02	-4.511E 02	-4.072E 02	-4.388E 01	1.129E 03	3.389E 01	1.815E-02	3.993E 01	2.139E-02
3.950E 01	1.637E 01	1.336F 01	-5.795E 02	-4.605E 02	-4.142E 02	-4.632F 01	1.151E 03	4.080E 01	2.186E-02	3.329E 01	1.783E-02
3.980E 01	1.710E 01	9.125E 00	-5.970E 02	-4.763E 02	-4.262E 02	-5.013E 01	1.186E 03	4.260E 01	2.282E-02	2.274E 01	1.218E-02
4.000E 01	1.757E 01	9.059F 00	-6.109E 02	-4.874E 02	-4.348E 02	-5.262E 01	1.210E 03	4.378E 01	2.345E-02	2.257E 01	1.209E-02
4.040E 01	2.090E 01	8.926E 00	-6.401E 02	-5.113E 02	-4.533E 02	-5.804E 01	1.257E 03	5.207E 01	2.789E-02	2.224E 01	1.191E-02
4.041E 01	2.098E 01	8.922E 00	-6.404E 02	-5.119E 02	-4.537E 02	-5.819E 01	1.258E 03	5.227E 01	2.800E-02	2.223E 01	1.191E-02
4.129E 01	2.826E 01	8.631E 00	-7.222E 02	-5.840E 02	-4.987E 02	-8.534E 01	1.361E 03	7.041E 01	3.772E-02	2.151E 01	1.152E-02
4.130E 01	2.834E 01	8.628E 00	-7.231E 02	-5.851E 02	-4.993E 02	-8.582E 01	1.362E 03	7.062E 01	3.783E-02	2.150E 01	1.152E-02
4.136E 01	2.888E 01	8.606E 00	-7.301E 02	-5.918E 02	-5.029E 02	-8.896E 01	1.370E 03	7.196E 01	3.855E-02	2.144E 01	1.149E-02
4.150F 01	3.004E 01	1.040E 01	-7.448E 02	-6.069E 02	-5.107E 02	-9.614E 01	1.387E 03	7.484E 01	4.009E-02	2.592E 01	1.389E-02
4.246F 01	1.912E 01	2.281F 01	-7.758E 02	-7.366E 02	-5.764E 02	-1.601E 02	1.502E 03	4.765E 01	2.553E-02	5.683E 01	3.044E-02
4.408E 01	4.188E 01	4.376F 01	-7.250E 02	-1.044E 03	-7.533E 02	-2.911E 02	1.698E 03	1.043E 02	5.590E-02	1.090E 02	5.840E-02
4.431E 01	4.310E 01	4.505E 01	-7.224E 02	-1.097E 03	-7.859E 02	-3.114F 02	1.726E 03	1.124E 02	6.019E-02	1.122E 02	6.013E-02
4.480E 01	5.192E 01	4.779F 01	-7.201E 02	-1.226E 03	-8.612E 02	-3.646E 02	1.785E 03	1.294E 02	6.929E-02	1.191E 02	6.379E-02
4.480F 01	5.197E 01	4.782F 01	-7.200E 02	-1.227E 03	-8.619E 02	-3.651E 02	1.785E 03	1.295E 02	6.937E-02	1.191E 02	6.382E-02
4.625E 01	4.999E 01	5.600E 01	-6.196E 02	-1.666E 03	-1.089E 03	-5.771E 02	1.964E 03	1.246E 02	6.672E-02	1.395E 02	7.475E-02
4.626E 01	4.998E 01	5.606E 01	-6.181E 02	-1.670E 03	-1.091E 03	-5.788E 02	1.965E 03	1.245E 02	6.671E-02	1.397E 02	7.482E-02
4.731E 01	4.854E 01	6.199F 01	-4.492E 02	-1.999E 03	-1.243E 03	-7.558E 02	2.095E 03	1.210E 02	6.479E-02	1.545E 02	8.273E-02
4.732E 01	4.862E 01	6.205E 01	-4.472E 02	-2.003E 03	-1.245E 03	-7.576F 02	2.096E 03	1.212E 02	6.490E-02	1.546E 02	8.282E-02
4.811F 01	5.435E 01	5.133E 01	-2.992E 02	-2.237E 03	-1.353E 03	-8.838E 02	2.195E 03	1.354E 02	7.254E-02	1.279E 02	6.851E-02
4.876F 01	4.250E 01	4.250E 01	-1.567E 02	-2.415E 03	-1.438E 03	-9.767E 02	2.276E 03	1.059E 02	5.672E-02	1.059E 02	5.672E-02
4.877E 01	4.236E 01	4.236F 01	-1.545E 02	-2.418E 03	-1.440E 03	-9.781F 02	2.277E 03	1.055E 02	5.654E-02	1.055E 02	5.654E-02
4.930E 01	3.516E 01	3.516E 01	-4.739E 01	-2.592E 03	-1.506E 03	-1.046E 03	2.344E 03	8.761E 01	4.693E-02	8.761E 01	4.693E-02
5.071E 01	3.131E 01	3.131E 01	1.983E 02	-2.871E 03	-1.670E 03	-1.201E 03	2.521E 03	7.802E 01	4.179E-02	7.802E 01	4.179E-02
5.281F 01	2.261E 01	2.261E 01	4.952E 02	-3.262E 03	-1.880E 03	-1.382E 03	2.788E 03	5.634E 01	3.018E-02	5.634E 01	3.018E-02
5.331E 01	2.027E 01	2.027F 01	5.510E 02	-3.344E 03	-1.923E 03	-1.421E 03	2.852E 03	5.052E 01	2.706E-02	5.052E 01	2.706E-02
5.406E 01	1.844E 01	1.844E 01	6.259E 02	-3.463E 03	-1.989E 03	-1.477E 03	2.947E 03	4.594F 01	2.461E-02	4.594E 01	2.461E-02
5.482E 01	1.657E 01	1.657F 01	6.937F 02	-3.574E 03	-2.042E 03	-1.532F 03	3.045E 03	4.130E 01	2.212E-02	4.130E 01	2.212E-02
5.576E 01	1.528E 01	1.528F 01	7.687E 02	-3.701E 03	-2.106E 03	-1.595E 03	3.165E 03	3.806E 01	2.039E-02	3.806F 01	2.039E-02
5.625E 01	1.460E 01	1.460F 01	9.359E 02	-3.759E 03	-2.134E 03	-1.685E 03	3.209E 03	3.639E 01	1.949E-02	3.639E 01	1.949E-02
5.630E 01	7.950E 00	1.453E 01	9.400E 02	-3.765E 03	-2.137E 03	-1.629E 03	3.216E 03	1.981E 01	1.061E-02	3.620E 01	1.939E-02
5.644E 01	7.950E 00	1.434E 01	9.494E 02	-3.781F 03	-2.143E 03	-1.637F 03	3.234E 03	1.981E 01	1.061E-02	3.572E 01	1.913E-02
5.652E 01	1.422E 01	1.422F 01	9.552E 02	-3.789E 03	-2.147E 03	-1.642F 03	3.245E 03	3.544E 01	1.899E-02	3.544E 01	1.899E-02
5.680E 01	1.384E 01	1.384F 01	9.735E 02	-3.819F 03	-2.160E 03	-1.659E 03	3.280E 03	3.448E 01	1.847E-02	3.448E 01	1.847E-02
5.703E 01	1.307E 01	1.307E 01	9.866E 02	-3.843E 03	-2.170E 03	-1.673F 03	3.309E 03	3.257F 01	1.745E-02	3.257E 01	1.745E-02
5.775E 01	1.062E 01	1.062E 01	1.019E 03	-3.917E 03	-2.199E 03	-1.717E 03	3.402E 03	2.646E 01	1.417E-02	2.646E 01	1.417E-02
5.877E 01	5.887E 00	5.887F 00	1.038E 03	-4.001E 03	-2.232E 03	-1.770E 03	3.532E 03	1.467E 01	7.858E-03	1.467E 01	7.858E-03
6.07AE 01	1.684E 01	1.684E 01	1.040E 03	-4.145E 03	-2.276E 03	-1.869E 03	3.790E 03	4.195E 01	2.247E-02	4.195E 01	2.247E-02
6.220E 01	1.605E 01	1.605F 01	1.040E 03	-4.251E 03	-2.305E 03	-1.946E 03	3.972E 03	3.999E 01	2.142E-02	3.999E 01	2.142E-02

READING = 0069 BLOCK = 159 TIME = 256.204 MACH 6.0 PT = 749.249 TT = 3049.9 PAGE 5

XABS	P=IP	P=OB	PDA	DDX	D=IB	D=OB	CA=ALL	P=IB/PSO	P=IB/PTO	P=OB/PSO	P=OB/PTO
6.466E 01	1.823E 01	1.823E 01	1.040E 03	-4.468E 03	-2.385E 03	-2.084E 03	4.289E 03	4.542E 01	2.433E-02	4.542E 01	2.433E-02
6.504E 01	2.062E 01	1.856E 01	1.040E 03	-4.507E 03	-2.400E 03	-2.107E 03	4.337E 03	5.139E 01	2.753E-02	4.625E 01	2.477E-02
6.50AE 01	2.062E 01	1.860E 01	1.040E 03	-4.511E 03	-2.402E 03	-2.109E 03	4.342E 03	5.139E 01	2.753E-02	4.634E 01	2.482E-02
6.528E 01	1.954E 01	1.877E 01	1.040E 03	-4.531E 03	-2.410E 03	-2.121E 03	4.368E 03	4.868E 01	2.607E-02	4.678E 01	2.506E-02
6.694E 01	1.050E 01	9.240E 00	1.201E 03	-4.675E 03	-2.466E 03	-2.209E 03	4.583E 03	2.616E 01	1.401E-02	2.302E 01	1.233E-02
6.761E 01	7.510E 00	9.247E 00	1.385E 03	-4.723E 03	-2.483E 03	-2.241E 03	4.665E 03	1.871E 01	1.002E-02	2.304E 01	1.234E-02
6.838E 01	4.075E 00	7.045E 00	1.575E 03	-4.778E 03	-2.499E 03	-2.280E 03	4.760E 03	1.015E 01	5.439E-03	1.755E 01	9.402E-03
6.910E 01	3.466E 00	4.985E 00	1.698E 03	-4.833E 03	-2.510E 03	-2.323E 03	4.848E 03	8.636E 00	4.626E-03	1.242E 01	6.653E-03
6.971E 01	2.950E 00	4.146E 00	1.782E 03	-4.877E 03	-2.518E 03	-2.359E 03	4.922E 03	7.350E 00	3.937E-03	1.033E 01	5.534E-03
7.066E 01	1.904E 00	2.840E 00	1.874E 03	-4.929E 03	-2.527E 03	-2.402E 03	5.036E 03	4.743E 00	2.541E-03	7.076E 00	3.790E-03
7.109E 01	1.430E 00	2.635E 00	1.905E 03	-4.947E 03	-2.530E 03	-2.417E 03	5.088E 03	3.563E 00	1.909E-03	6.565E 00	3.517E-03
7.262E 01	1.944E 00	1.905E 00	1.993E 03	-5.002E 03	-2.540E 03	-2.462E 03	5.273E 03	3.847E 00	2.061E-03	4.747E 00	2.543E-03
7.277E 01	1.555E 00	1.796E 00	2.000E 03	-5.006E 03	-2.540E 03	-2.466E 03	5.290E 03	3.874E 00	2.075E-03	4.475E 00	2.397E-03
7.352E 01	1.625E 00	1.250E 00	2.052E 03	-5.033E 03	-2.545E 03	-2.489E 03	5.374E 03	4.050E 00	2.169E-03	3.115E 00	1.668E-03
7.352E 01	1.626E 00	1.247E 00	2.055E 03	-5.033E 03	-2.545E 03	-2.489E 03	5.375E 03	4.051E 00	2.170E-03	3.107E 00	1.664E-03
7.485E 01	1.750E 00	0.000	2.091E 03	-5.086E 03	-2.552E 03	-2.535E 03	5.427E 03	4.360E 00	2.336E-03	0.000	0.000
7.770E 01	2.550E 00	0.000	2.177E 03	-5.100E 03	-2.565E 03	-2.535E 03	5.525E 03	6.354E 00	3.403E-03	0.000	0.000
8.160E 01	1.775E 00	0.000	2.269E 03	-5.115E 03	-2.580E 03	-2.535E 03	5.630E 03	4.423E 00	2.369E-03	0.000	0.000
8.441E 01	1.660E 00	0.000	2.307E 03	-5.129E 03	-2.594E 03	-2.535E 03	5.684E 03	4.136E 00	2.216E-03	0.000	0.000
8.727E 01	3.240E 00	0.000	2.366E 03	-5.152E 03	-2.617E 03	-2.535E 03	5.707E 03	8.073E 00	4.324E-03	0.000	0.000
8.728E 01	3.243E 00	0.000	2.366E 03	-5.152E 03	-2.617E 03	-2.535E 03	5.707E 03	8.081E 00	4.329E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.212E 02	1.212E 02	2.214E-03	4.382E-02
4.041E 01	1.900E-01	1.214E 02	2.483E-03	4.055E-02
4.129E 01	1.766E 01	1.391E 02	2.604E-03	4.675E-02
4.130E 01	1.912E-01	1.393E 02	2.407E-03	4.951E-02
4.136E 01	1.208E 00	1.405E 02	2.382E-03	5.032E-02
4.150E 01	2.561E 00	1.430E 02	2.398E-03	5.283E-02
4.246E 01	1.746E 01	1.605E 02	2.416E-03	5.319E-02
4.408E 01	2.700E 01	1.675E 02	2.529E-03	7.866E-02
4.431E 01	3.701E 00	1.912E 02	2.947E-03	6.908E-02
4.480E 01	8.178E 00	1.994E 02	2.977E-03	7.063E-02
4.480E 01	6.459E-02	1.994E 02	3.017E-03	6.962E-02
4.625E 01	2.387E 01	2.233E 02	3.277E-03	6.710E-02
4.626E 01	1.560E-01	2.235E 02	2.974E-03	7.477E-02
4.731E 01	1.472E 01	2.382E 02	2.938E-03	7.569E-02
4.732E 01	1.432E-01	2.383E 02	3.067E-03	7.220E-02
4.811E 01	1.074E 01	2.491E 02	3.022E-03	7.153E-02
4.876E 01	9.234E 00	2.583E 02	3.263E-03	6.198E-02
4.877E 01	1.448E-01	2.584E 02	3.000E-03	6.775E-02
4.930E 01	7.382E 00	2.658E 02	2.934E-03	6.267E-02
5.071E 01	1.853E 01	2.844E 02	2.875E-03	5.790E-02
5.281E 01	2.522E 01	3.096E 02	2.908E-03	4.576E-02
5.331E 01	5.912E 00	3.155E 02	2.908E-03	4.145E-02
5.406E 01	8.779E 00	3.243E 02	2.944E-03	3.913E-02
5.482E 01	8.581E 00	3.328E 02	2.931E-03	3.632E-02
5.576E 01	1.020E 01	3.430E 02	2.903E-03	3.427E-02
5.625E 01	3.239E 00	3.463E 02	2.881E-03	3.124E-02
5.630E 01	4.906E-01	3.468E 02	3.080E-03	2.512E-02
5.644E 01	1.274E 00	3.480E 02	2.867E-03	2.638E-02
5.652E 01	7.391E-01	3.488E 02	3.289E-03	2.771E-02
5.680E 01	2.689E 00	3.515E 02	3.280E-03	2.730E-02
5.703E 01	2.196E 00	3.537E 02	3.274E-03	2.641E-02
5.775E 01	7.236E 00	3.609E 02	3.272E-03	2.315E-02
5.877E 01	1.100E 01	3.719E 02	3.355E-03	1.527E-02
6.078E 01	2.063E 01	3.925E 02	3.250E-03	3.041E-02
6.220E 01	1.330E 01	4.058E 02	3.237E-03	2.982E-02
6.466E 01	2.225E 01	4.281E 02	3.268E-03	3.097E-02
6.504E 01	2.990E 00	4.311E 02	3.316E-03	3.083E-02
6.508E 01	3.103E-01	4.314E 02	3.399E-03	3.165E-02
6.528E 01	1.621E 00	4.330E 02	3.396E-03	3.136E-02
6.694E 01	1.311E 01	4.461E 02	3.326E-03	2.216E-02
6.761E 01	4.630E 00	4.507E 02	3.308E-03	1.999E-02
6.838E 01	4.801E 00	4.555E 02	3.257E-03	1.519E-02
6.910E 01	3.805E 00	4.593E 02	3.218E-03	1.250E-02
6.971E 01	2.853E 00	4.622E 02	3.196E-03	1.102E-02
7.066E 01	3.775E 00	4.660E 02	3.144E-03	8.183E-03
7.109E 01	1.456E 00	4.674E 02	3.123E-03	7.281E-03
7.262E 01	4.679E 00	4.721E 02	3.095E-03	6.411E-03
7.277E 01	4.118E-01	4.725E 02	3.091E-03	6.270E-03
7.352E 01	1.908E 00	4.744E 02	3.066E-03	5.568E-03
7.352E 01	3.480E-03	4.744E 02	3.066E-03	5.564E-03
7.485E 01	1.185E 00	4.756E 02	3.084E-03	6.456E-03
7.770E 01	2.670E 00	4.783E 02	3.118E-03	8.531E-03
8.160E 01	2.848E 00	4.811E 02	3.049E-03	6.445E-03
8.441E 01	1.288E 00	4.824E 02	3.027E-03	6.095E-03
8.727E 01	6.467E-01	4.831E 02	3.103E-03	1.003E-02
8.728E 01	0.000	4.831E 02	3.103E-03	1.003E-02

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1763.	(LBF)
MEASURED THRUST	1572.	(LBF)
CALCULATED SPECIFIC IMPULSE	2439.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2151.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.6980	
MEASURED THRUST COEFFICIENT	0.6154	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	6987.	(LBF)
NET THRUST	1868.	(LBF)
SPECIFIC IMPULSE	2556.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.7315	

MOMENTUM AND FORCES

INLET FRICTION DRAG	121.2	(LBF)
INLET MOMENTUM CHANGE	-761.4	(LBF)
COMBUSTOR FRICTION DRAG	309.8	(LBF)
COMBUSTOR STRUT DRAG	20.21	(LBF)
COMBUSTOR MOMENTUM CHANGE	1270.	(LBF)
NOZZLE FRICTION DRAG	52.00	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1274.	(LBF)
NOZZLE PRESSURE INTEGRAL	1326.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-1510.	(LBF)
TOTAL STRUT DRAG	20.21	(LBF)
CAVITY FORCE	-1206.	(LBF)
CALCULATED LOAD CELL FORCE	-933.	(LBF)
MEASURED LOAD CELL FORCE	-1144.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, -166.4, -123.7,		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3009	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.185	(IN)
NOZZLE SHROUD TRAILING EDGE	73.525	(IN)
NOZZLE PLUG TRAILING EDGE	87.277	(IN)
STRUT LEADING EDGE	56.441	(IN)
STRUT TRAILING EDGE	65.041	(IN)
COMBUSTOR EXIT	65.041	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9815	
ADDITIVE DRAG COEFFICIENT	0.0009	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1636	
DELTA PT2	0.1194	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.3928	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1659	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8957	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9050	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9351	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8851	
ENTHALPY AT P0 - SUPERSONIC	-1.35	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	34.38	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0271
EQUIVALENCE RATIO	0.914
COMBUSTOR EFFICIENCY	1.000
TOTAL PRESSURE RATIO	0.1621
COMBUSTOR EFFECTIVENESS	0.8743
INJECTOR DISCHARGE COEFFICIENTS	0.7981, 0.6906, 0.7962, 0.6791

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9584
NOZZLE COEFFICIENT = CT	0.8760
PROCESS EFFICIENCY	0.8954
KINETIC ENERGY EFFICIENCY	0.9073

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.286	B
1C	44.300	
2A	48.761	D
2C	46.250	E
3A	54.051	
3B	56.236	
4	44.786	

Reading 69

t = 265.20 sec.

READING = 0069 BLOCK = 169 TIME = 265.204 MACH 6.0 PT = 749.750 TT = 2964.6

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	749.750	2965	660.0(	786)	1.2947	28.860	2571											
0.000	0.388	399	-33.2(	46)	1.3987	28.859	981	6.006	5890	1.824	0.10690	27.057	0.9882	5051	9.784	186.7		
SPIKE TIP NS		2	0	3														
0.600	18.012	2965	660.0(	786)	1.2946	28.859	2571											
0.600	16.250	2896	639.3(	766)	1.2968	28.859	2543	0.401	1020	2.081	0.10690	27.057	0.9882	4971	1.694	183.7		
WIND TUNNEL		3	0	0														
0.000	749.750	2965	660.0(	786)	1.2947	28.860	2571											
0.000	0.377	396	-34.0(	45)	1.3987	28.859	977	6.034	5893	1.824	0.10480	26.527	0.9882	4954	9.598	186.8		
SPIKE TIP NS		4	0	0														
0.600	18.012	2965	660.0(	786)	1.2946	28.859	2571											
0.600	16.328	2899	640.2(	767)	1.2967	28.859	2545	0.392	996	2.081	0.10480	26.527	0.9882	4954	1.623	186.8		
INLET THROAT		5	0	3														
40.400	278.394	2909	643.3(	770)	1.2965	28.859	2549											
40.400	16.127	1450	229.3(	359)	1.3517	28.859	1837	2.477	4551	1.887	0.94593	27.057	0.1117	4289	66.880	158.5		
INLET UPNRSK		6	0	3														
40.400	278.394	2909	643.3(	770)	1.2965	28.859	2549											
40.400	13.839	1393	214.4(	344)	1.3550	28.859	1803	2.569	4633	1.887	0.85987	27.057	0.1229	4332	61.890	160.1		
INLET DNNRSK		7	0	4														
40.400	122.148	2909	643.3(	770)	1.2965	28.859	2549											
40.400	104.619	2808	612.8(	740)	1.2996	28.859	2507	0.493	1235	1.943	0.85957	27.057	0.1229	4332	16.500	160.1		
COMBUSTOR	0	8	1	21														
40.410	238.837	2873	645.7(	791)	1.2987	27.627	2591											
40.410	15.049	1457	228.1(	376)	1.3524	27.626	1883	2.427	4571	1.965	0.94872	27.152	0.1117	4288	67.395	157.9	0.12	0.07
COMBUSTOR	0	9	2	21														
41.284	188.618	2811	649.4(	801)	1.3022	26.563	2617											
41.284	18.522	1592	275.4(	430)	1.3467	26.563	2003	2.160	4326	2.037	0.95443	27.238	0.1114	4191	64.164	153.9	0.23	0.04
COMBUSTOR	0	10	3	21														
41.294	196.294	2772	649.4(	790)	1.3040	26.523	2603											
41.294	18.561	1551	276.0(	418)	1.3492	26.522	1981	2.182	4323	2.030	0.95376	27.238	0.1115	4190	64.072	153.8	0.23	0.01
COMBUSTOR	0	11	4	21														
41.359	195.427	2766	649.2(	788)	1.3043	26.517	2601											
41.359	18.820	1554	278.7(	419)	1.3491	26.516	1983	2.171	4306	2.030	0.95526	27.238	0.1113	4182	63.918	153.5	0.23	0.00
COMBUSTOR	0	12	5	21														
41.500	191.025	2763	648.6(	787)	1.3044	26.516	2600											
41.500	20.403	1595	290.7(	431)	1.3470	26.515	2007	2.109	4232	2.031	0.95524	27.238	0.1113	4165	62.825	152.9	0.23	0.00
COMBUSTOR	0	13	6	3														
42.460	167.183	2811	644.3(	801)	1.3020	26.580	2616											
42.460	23.768	1750	316.7(	476)	1.3391	26.580	2094	1.934	4049	2.046	0.94582	27.238	0.1124	4112	59.512	151.0	0.23	0.06
COMBUSTOR	0	14	7	5														
44.079	114.002	3559	634.1(	1029)	1.2660	27.449	2857											
44.079	46.553	2931	424.2(	827)	1.2876	27.455	2614	1.240	3241	2.123	0.91446	27.238	0.1163	4130	46.057	151.6	0.23	0.78
COMBUSTOR	0	15	8	3														
44.310	112.681	3599	632.4(	1041)	1.2638	27.502	2867											
44.310	48.855	3007	433.4(	850)	1.2844	27.509	2642	1.195	3156	2.125	0.91277	27.238	0.1165	4129	44.764	151.6	0.23	0.83
COMBUSTOR	0	16	9	3														
44.794	110.605	3654	628.2(	1057)	1.2607	27.583	2881											
44.794	53.676	3134	451.7(	890)	1.2791	27.591	2688	1.106	2972	2.128	0.90874	27.238	0.1170	4125	41.969	151.4	0.23	0.89
COMBUSTOR	0	17	10	0														
44.800	110.577	3654	628.2(	1057)	1.2607	27.583	2881											
44.800	53.737	3135	452.0(	890)	1.2791	27.591	2688	1.105	2969	2.128	0.90876	27.238	0.1170	4124	41.933	151.4	0.23	0.89
COMBUSTOR	0	18	11	6														
46.250	104.128	3186	606.4(	1031)	1.2865	23.689	2921											
46.250	57.871	2789	500.6(	969)	1.2997	23.890	2747	0.983	2701	2.329	0.86653	27.555	0.1242	4153	36.374	150.7	0.62	0.25

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	A	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 2														
46.260	104.104	3188	646.3(1032)	1.2864	23.891	2921											
46.260	57.899	2791	500.6(889)	1.2996	23.892	2747	0.963	2700	2.329	0.86602	27.555	0.1242	4155	36.536	156.6	0.62	0.25
COMBUSTOR	0	20	13 4														
47.310	101.118	3444	635.6(1120)	1.2736	24.176	3003											
47.310	60.892	3083	499.7(989)	1.2860	24.179	2855	0.913	2608	2.348	0.80596	27.555	0.1335	4315	32.665	156.6	0.62	0.36
COMBUSTOR	0	21	14 2														
47.319	101.109	3446	635.5(1120)	1.2735	24.178	3004											
47.319	60.946	3085	499.8(989)	1.2859	24.181	2856	0.912	2606	2.348	0.80559	27.555	0.1335	4317	32.628	156.7	0.62	0.36
COMBUSTOR	0	22	15 4														
48.110	97.445	3720	627.8(1215)	1.2590	24.484	3084											
48.110	57.823	3335	478.6(1074)	1.2730	24.492	2936	0.931	2733	2.367	0.75111	27.555	0.1432	4462	31.902	161.9	0.62	0.48
COMBUSTOR	0	23	16 6														
48.759	91.933	3384	643.9(1221)	1.2784	21.645	3152											
48.759	45.611	2895	442.2(1025)	1.2950	21.648	2934	1.083	3177	2.565	0.70121	27.874	0.1552	4565	34.619	163.8	1.02	0.27
COMBUSTOR	0	24	17 2														
48.769	91.881	3386	643.9(1222)	1.2782	21.648	3153											
48.769	45.465	2895	441.3(1025)	1.2949	21.650	2934	1.085	3183	2.565	0.70030	27.874	0.1554	4568	34.645	163.9	1.02	0.27
COMBUSTOR	0	25	18 4														
49.299	89.732	3479	639.6(1258)	1.2735	21.742	3183											
49.299	37.758	2874	388.8(1014)	1.2943	21.746	2916	1.215	3542	2.573	0.65495	27.874	0.1662	4676	36.052	167.7	1.02	0.30
COMBUSTOR	0	26	19 5														
50.709	81.659	3830	629.4(1394)	1.2543	22.094	3288											
50.709	32.137	3148	337.4(1116)	1.2796	22.107	3010	1.270	3822	2.604	0.55819	27.874	0.1950	4916	33.156	176.4	1.02	0.41
COMBUSTOR	0	27	20 4														
52.809	75.767	4067	616.8(1485)	1.2394	22.354	3348											
52.809	23.025	3191	233.8(1127)	1.2741	22.384	3005	1.457	4377	2.622	0.49750	27.874	0.2379	5195	31.124	186.4	1.02	0.48
COMBUSTOR	0	28	21 3														
53.309	76.037	4044	614.1(1476)	1.2408	22.338	3342											
53.309	20.655	3094	202.0(1089)	1.2779	22.366	2965	1.532	4541	2.620	0.43881	27.874	0.2480	5246	30.968	188.2	1.02	0.48
COMBUSTOR	0	29	22 4														
54.059	74.165	4099	610.3(1497)	1.2370	22.401	3355											
54.059	19.001	3105	177.0(1092)	1.2765	22.435	2964	1.571	4656	2.625	0.41363	27.874	0.2631	5314	29.931	190.7	1.02	0.50
COMBUSTOR	0	30	23 3														
54.819	73.001	4125	606.7(1508)	1.2351	22.436	3360											
54.819	17.325	3079	149.9(1081)	1.2770	22.473	2949	1.621	4781	2.627	0.39115	27.874	0.2782	5376	29.061	192.9	1.02	0.51
COMBUSTOR	0	31	24 4														
55.760	71.003	4178	602.6(1528)	1.2313	22.499	3372											
55.760	15.881	3089	124.3(1083)	1.2756	22.543	2948	1.659	4892	2.632	0.36688	27.874	0.2966	5445	27.891	195.3	1.02	0.53
COMBUSTOR	0	32	25 5														
56.244	55.521	4634	600.7(1708)	1.1939	22.977	3460											
56.244	15.139	3700	134.2(1318)	1.2408	23.126	3142	1.538	4832	2.672	0.29582	27.874	0.3679	5612	22.212	201.3	1.02	0.68
COMBUSTOR	0	33	26 5														
56.299	64.686	4234	600.5(1550)	1.2266	22.561	3383											
56.299	11.558	2995	55.7(1045)	1.2780	22.615	2901	1.800	5221	2.642	0.29489	27.874	0.3691	5616	23.928	201.5	1.02	0.54
COMBUSTOR	0	34	27 3														
56.439	64.578	4241	600.0(1553)	1.2262	22.569	3384											
56.439	11.451	2996	52.4(1045)	1.2779	22.624	2901	1.805	5235	2.643	0.29292	27.874	0.3715	5625	23.829	201.8	1.02	0.55
COMBUSTOR	0	35	28 21														
56.519	48.386	5154	599.8(1915)	1.1482	23.519	3537											
56.519	14.717	4487	120.0(1625)	1.1627	24.000	3288	1.490	4899	2.692	0.29615	27.874	0.3675	5630	22.548	202.0	1.02	1.00
COMBUSTOR	0	36	29 21														
56.799	48.488	5153	598.7(1915)	1.1482	23.521	3537											
56.799	14.287	4468	107.3(1617)	1.1635	24.011	3281	1.511	4959	2.692	0.29512	27.874	0.3688	5645	22.742	202.5	1.02	1.00
COMBUSTOR	0	37	30 21														
57.025	48.250	5152	597.9(1914)	1.1482	23.521	3536											
57.025	13.447	4435	86.2(1602)	1.1648	24.030	3269	1.548	5060	2.692	0.29462	27.874	0.3694	5656	23.169	202.9	1.02	1.00

READING = 0069 BLOCK = 169 TIME = 265.204 MACH 6.0 PT = 749.750 T1 = 2964.6

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	34	31 21														
57.749	46.040	5143	595.5(1911)	1.1479	23.518	3533											
57.749	10.755	4329	20.6(1557)	1.1687	24.082	3232	1.660	5364	2.695	0.28999	27.874	0.3753	5661	24.172	203.8	1.02	1.00
COMBUSTOR	0	39	32 21														
58.769	34.849	5103	592.8(1894)	1.1457	23.481	3518											
58.769	5.512	4090	-114.2(1457)	1.1772	24.171	3147	1.890	5948	2.718	0.28815	27.874	0.3777	5686	26.635	204.0	1.02	1.00
COMBUSTOR	0	40	33 21														
60.779	50.605	5148	588.0(1912)	1.1489	23.542	3534											
60.779	16.650	4522	138.7(1639)	1.1625	23.989	3301	1.437	4741	2.686	0.29817	27.874	0.3650	5664	21.970	203.2	1.02	1.00
COMBUSTOR	0	41	34 21														
62.199	51.333	5147	584.5(1912)	1.1492	23.549	3534											
62.199	16.444	4503	125.6(1631)	1.1634	24.003	3294	1.455	4792	2.684	0.30626	27.874	0.3553	5648	22.807	202.6	1.02	1.00
COMBUSTOR	0	42	35 21														
64.663	48.791	5133	577.2(1906)	1.1490	23.552	3528											
64.663	19.169	4607	196.5(1676)	1.1595	23.935	3331	1.310	4364	2.687	0.29030	27.874	0.3749	5622	19.690	201.7	1.02	1.00
COMBUSTOR	0	43	36 200														
65.039	45.400	5122	575.9(1901)	1.1484	23.543	3524											
65.039	19.917	4662	238.3(1700)	1.1570	23.889	3350	1.227	4110	2.693	0.26988	27.874	0.4032	5618	17.239	201.6	1.02	1.00
COMBUSTOR REGEN	44	37 2															
65.039	45.400	5160	614.3(1918)	1.1472	23.489	3540											
65.039	19.894	4703	272.8(1718)	1.1548	23.846	3365	1.229	4134	2.700	0.26988	27.874	0.4032	5636	17.339	202.2	1.02	1.00
NOZZLE AE	45	38 5															
87.275	45.400	5122	575.9(1880)	1.1484	23.543	3524											
87.275	1.422	3067	-604.0(1040)	1.2578	24.368	2806	2.739	7684	2.693	0.05618	27.874	1.9371	7363	6.709	264.1	1.02	1.00
NOZZLE PO	46	39 5															
87.275	45.400	5122	575.9(1880)	1.1484	23.543	3524											
87.275	0.388	2326	-888.4(757)	1.2821	24.368	2467	3.470	8560	2.693	0.02251	27.874	4.8345	7896	2.995	283.3	1.02	1.00
NOZZLE AE REGEN	47	40 5															
87.275	45.400	5160	614.3(1918)	1.1472	23.489	3540											
87.275	1.448	3136	-576.4(1067)	1.2541	24.364	2833	2.725	7719	2.700	0.05618	27.874	1.9371	7406	6.739	265.7	1.02	1.00
NOZZLE PO REGEN	48	41 5															
87.275	45.400	5160	614.3(1918)	1.1472	23.489	3540											
87.275	0.388	2373	-870.9(774)	1.2805	24.368	2490	3.462	8621	2.700	0.02222	27.874	4.8978	7955	2.977	285.4	1.02	1.00
FICTIVE COMBUSTR	68	61 0															
65.039	278.394	5345	979.9(1992)	1.1643	23.784	3607											
65.039	0.388	1511	-1177.1(468)	1.3201	24.368	2017	4.642	9366	2.540	0.03791	27.874	2.8706	8400	5.518	301.3	1.02	1.00
FICTIVE NOZZLE	69	62 0															
87.275	27.345	5035	554.9(1865)	1.1448	23.501	3492											
87.275	1.801	3514	-413.2(1218)	1.2198	24.332	2959	2.352	6960	2.731	0.05618	27.874	1.9371	6924	6.077	248.4	1.02	1.00

XABS	P=1B	P=0B	PDA	Q0X	W=1B	Q=0B	CAWALL	P=1B/PS0	P=1B/PT0	P=0B/PS0	P=0B/PT0
6.981E-01	1.090E 00	0.000	-4.389E-01	0.000	0.000	0.000	2.470E-02	2.810E 00	1.454E-03	0.000	0.000
1.836E 01	1.090E 00	0.000	-3.628E 01	0.000	0.000	0.000	1.634E 02	2.810E 00	1.454E-03	0.000	0.000
3.070E 01	2.465E 00	0.000	-1.804E 02	0.000	0.000	0.000	5.053E 02	6.355E 00	3.288E-03	0.000	0.000
3.508E 01	4.032E 00	0.000	-3.909E 02	0.000	0.000	0.000	6.804E 02	1.040E 01	5.378E-03	0.000	0.000
3.518E 01	4.075E 00	5.724E 00	-4.558E 02	0.000	0.000	0.000	6.847E 02	1.051E 01	5.434E-03	1.476E 01	7.634E-03
3.518E 01	4.078E 00	5.692E 00	-4.559E 02	0.000	0.000	0.000	6.850E 02	1.051E 01	5.439E-03	1.467E 01	7.592E-03
3.555E 01	4.240E 00	3.781E 00	-4.653E 02	0.000	0.000	0.000	7.218E 02	1.093E 01	5.655E-03	9.747E 00	5.043E-03
3.585E 01	4.161E 00	2.225E 00	-4.803E 02	-2.936E 02	-2.936E 02	0.000	7.521E 02	1.073E 01	5.550E-03	5.736E 00	2.968E-03
3.606E 01	4.105E 00	3.080E 00	-4.919E 02	-2.971E 02	-2.971E 02	0.000	7.738E 02	1.059E 01	5.475E-03	7.940E 00	4.108E-03
3.648E 01	4.315E 00	4.781E 00	-5.117E 02	-3.044E 02	-3.044E 02	0.000	8.174E 02	1.112E 01	5.755E-03	1.232E 01	6.377E-03
3.701E 01	4.470E 00	6.927E 00	-5.362E 02	-3.235E 02	-3.140E 02	-9.538E 00	8.734E 02	1.152E 01	5.962E-03	1.786E 01	9.239E-03
3.731E 01	4.354E 00	8.137E 00	-5.485E 02	-3.322E 02	-3.196E 02	-1.254E 01	9.055E 02	1.123E 01	5.808E-03	2.098E 01	1.085E-02
3.803E 01	4.075E 00	1.355E 01	-5.652E 02	-3.535E 02	-3.339E 02	-1.960E 01	9.843E 02	1.051E 01	5.435E-03	3.494E 01	1.808E-02
3.833E 01	5.662E 00	1.580E 01	-5.646E 02	-3.630E 02	-3.405E 02	-2.250E 01	1.018E 03	1.460E 01	7.552E-03	4.073E 01	2.107E-02
3.875E 01	7.899E 00	1.542E 01	-5.678E 02	-3.775E 02	-3.510E 02	-2.654E 01	1.065E 03	2.036E 01	1.054E-02	3.975E 01	2.057E-02
3.880E 01	8.159E 00	1.537E 01	-5.682E 02	-3.793E 02	-3.523E 02	-2.700E 01	1.071E 03	2.103E 01	1.088E-02	3.964E 01	2.051E-02
3.901E 01	9.280E 00	1.567E 01	-5.693E 02	-3.874E 02	-3.584E 02	-2.901E 01	1.095E 03	2.392E 01	1.238E-02	4.040E 01	2.090E-02
3.931E 01	1.362E 01	1.609E 01	-5.750E 02	-3.995E 02	-3.676E 02	-3.184E 01	1.129E 03	3.510E 01	1.816E-02	4.147E 01	2.146E-02
3.950E 01	1.639E 01	1.348E 01	-5.829E 02	-4.077E 02	-3.741E 02	-3.363E 01	1.151E 03	4.225E 01	2.186E-02	3.467E 01	1.794E-02
3.980E 01	1.710E 01	9.325E 00	-6.000E 02	-4.214E 02	-3.850E 02	-3.637E 01	1.186E 03	4.409E 01	2.281E-02	2.404E 01	1.244E-02
4.000E 01	1.758E 01	9.258E 00	-6.138E 02	-4.312E 02	-3.930E 02	-3.819E 01	1.210E 03	4.532E 01	2.345E-02	2.387E 01	1.235E-02
4.040E 01	2.089E 01	9.126E 00	-6.426E 02	-4.522E 02	-4.099E 02	-4.226E 01	1.257E 03	5.386E 01	2.787E-02	2.353E 01	1.217E-02
4.041E 01	2.098E 01	9.122E 00	-6.432E 02	-4.527E 02	-4.103E 02	-4.238E 01	1.258E 03	5.407E 01	2.798E-02	2.352E 01	1.217E-02
4.128E 01	2.821E 01	8.833E 00	-7.233E 02	-5.175E 02	-4.515E 02	-6.607E 01	1.361E 03	7.273E 01	3.763E-02	2.277E 01	1.178E-02
4.129E 01	2.829E 01	8.829E 00	-7.243E 02	-5.185E 02	-4.520E 02	-6.650E 01	1.362E 03	7.294E 01	3.774E-02	2.276E 01	1.178E-02
4.136E 01	2.883E 01	8.808E 00	-7.311E 02	-5.246E 02	-4.553E 02	-6.935E 01	1.370E 03	7.433E 01	3.845E-02	2.271E 01	1.175E-02
4.150E 01	3.000E 01	1.081E 01	-7.457E 02	-5.386E 02	-4.626E 02	-7.601E 01	1.387E 03	7.734E 01	4.001E-02	2.786E 01	1.441E-02
4.246E 01	2.314E 01	2.440E 01	-7.811E 02	-6.574E 02	-5.225E 02	-1.349E 02	1.502E 03	5.965E 01	3.086E-02	6.290E 01	3.254E-02
4.408E 01	4.579E 01	4.732E 01	-7.368E 02	-9.339E 02	-6.822E 02	-2.518E 02	1.698E 03	1.180E 02	6.107E-02	1.220E 02	6.311E-02
4.431E 01	4.902E 01	4.869E 01	-7.340E 02	-9.814E 02	-7.118E 02	-2.696E 02	1.726E 03	1.264E 02	6.538E-02	1.255E 02	6.494E-02
4.479E 01	5.579E 01	5.156E 01	-7.311E 02	-1.095E 03	-7.791E 02	-3.163E 02	1.785E 03	1.438E 02	7.441E-02	1.329E 02	6.877E-02
4.480E 01	5.587E 01	5.160E 01	-7.315E 02	-1.097E 03	-7.800E 02	-3.170E 02	1.786E 03	1.440E 02	7.452E-02	1.330E 02	6.882E-02
4.625E 01	5.554E 01	6.021E 01	-6.270E 02	-1.490E 03	-9.841E 02	-5.062E 02	1.964E 03	1.432E 02	7.407E-02	1.552E 02	8.030E-02
4.626E 01	5.553E 01	6.026E 01	-6.258E 02	-1.493E 03	-9.855E 02	-5.077E 02	1.965E 03	1.432E 02	7.407E-02	1.554E 02	8.038E-02
4.731E 01	5.529E 01	6.650E 01	-4.517E 02	-1.789E 03	-1.122E 03	-6.664E 02	2.095E 03	1.425E 02	7.374E-02	1.714E 02	8.869E-02
4.732E 01	5.535E 01	6.655E 01	-4.503E 02	-1.791E 03	-1.124E 03	-6.678E 02	2.096E 03	1.427E 02	7.382E-02	1.716E 02	8.876E-02
4.811E 01	6.060E 01	5.505E 01	-2.954E 02	-2.002E 03	-1.221E 03	-7.810E 02	2.195E 03	1.562E 02	8.083E-02	1.419E 02	7.342E-02
4.876E 01	4.561E 01	4.561E 01	-1.436E 02	-2.161E 03	-1.297E 03	-8.638E 02	2.276E 03	1.176E 02	6.083E-02	1.176E 02	6.083E-02
4.877E 01	4.547E 01	4.547E 01	-1.412E 02	-2.163E 03	-1.298E 03	-8.650E 02	2.277E 03	1.172E 02	6.064E-02	1.172E 02	6.064E-02
4.930E 01	3.776E 01	3.776E 01	-2.629E 01	-2.283E 03	-1.358E 03	-9.255E 02	2.344E 03	9.734E 01	5.036E-02	9.734E 01	5.036E-02
5.071E 01	3.214E 01	3.214E 01	2.321E 02	-2.567E 03	-1.505E 03	-1.063E 03	2.921E 03	8.285E 01	4.286E-02	8.285E 01	4.286E-02
5.281E 01	2.302E 01	2.302E 01	5.358E 02	-2.918E 03	-1.693E 03	-1.225E 03	2.788E 03	5.936E 01	3.071E-02	5.936E 01	3.071E-02
5.331E 01	2.065E 01	2.065E 01	5.925E 02	-2.992E 03	-1.732E 03	-1.260E 03	2.851E 03	5.325E 01	2.755E-02	5.325E 01	2.755E-02
5.406E 01	1.900E 01	1.900E 01	6.693E 02	-3.098E 03	-1.787E 03	-1.311E 03	2.947E 03	4.898E 01	2.534E-02	4.898E 01	2.534E-02
5.482E 01	1.732E 01	1.732E 01	7.397E 02	-3.199E 03	-1.838E 03	-1.361E 03	3.045E 03	4.466E 01	2.311E-02	4.466E 01	2.311E-02
5.576E 01	1.588E 01	1.588E 01	8.180E 02	-3.313E 03	-1.895E 03	-1.418E 03	3.166E 03	4.094E 01	2.118E-02	4.094E 01	2.118E-02
5.624E 01	1.514E 01	1.514E 01	9.889E 02	-3.366E 03	-1.920E 03	-1.446E 03	3.209E 03	3.903E 01	2.019E-02	3.903E 01	2.019E-02
5.630E 01	8.062E 00	1.505E 01	9.931E 02	-3.372E 03	-1.923E 03	-1.449E 03	3.216E 03	2.078E 01	1.075E-02	3.881E 01	2.008E-02
5.644E 01	8.062E 00	1.484E 01	1.003E 03	-3.386E 03	-1.929E 03	-1.457E 03	3.234E 03	2.078E 01	1.075E-02	3.826E 01	1.979E-02
5.652E 01	1.472E 01	1.472E 01	1.009E 03	-3.394E 03	-1.933E 03	-1.461E 03	3.245E 03	3.794E 01	1.963E-02	3.794E 01	1.963E-02
5.680E 01	1.429E 01	1.429E 01	1.028E 03	-3.421E 03	-1.944E 03	-1.477E 03	3.280E 03	3.683E 01	1.906E-02	3.683E 01	1.906E-02
5.702E 01	1.345E 01	1.345E 01	1.041E 03	-3.443E 03	-1.953E 03	-1.489E 03	3.309E 03	3.467E 01	1.794E-02	3.467E 01	1.794E-02
5.775E 01	1.075E 01	1.075E 01	1.074E 03	-3.509E 03	-1.980E 03	-1.530E 03	3.402E 03	2.773E 01	1.434E-02	2.773E 01	1.434E-02
5.877E 01	5.512E 00	5.512E 00	1.093E 03	-3.587E 03	-2.009E 03	-1.578E 03	3.532E 03	1.421E 01	7.352E-03	1.421E 01	7.352E-03
6.078E 01	1.665E 01	1.665E 01	1.095E 03	-3.720E 03	-2.050E 03	-1.670E 03	3.790E 03	4.292E 01	2.221E-02	4.292E 01	2.221E-02
6.220E 01	1.644E 01	1.644E 01	1.095E 03	-3.819E 03	-2.078E 03	-1.741E 03	3.972E 03	4.239E 01	2.193E-02	4.239E 01	2.193E-02

READING = 0069 BLOCK = 169 TIME = 265.204 MACH 6.0 PT = 749.750 TT = 2964.6

XABS	P=IB	P=OB	PDA	QOX	Q=IB	Q=OB	CAWALL	P=IB/PSO	P=IB/PTO	P=OB/PSO	P=OB/PTO
6.466E 01	1.917E 01	1.917E 01	1.095E 03	-4.021E 03	-2.151E 03	-1.870E 03	4.289E 03	4.942E 01	2.557E-02	4.942E 01	2.557E-02
6.504E 01	2.025E 01	1.958E 01	1.095E 03	-4.057E 03	-2.166E 03	-1.891E 03	4.337E 03	5.220E 01	2.701E-02	5.049E 01	2.612E-02
6.508E 01	2.025E 01	1.963E 01	1.095E 03	-4.060E 03	-2.167E 03	-1.893E 03	4.342E 03	5.220E 01	2.701E-02	5.060E 01	2.618E-02
6.528E 01	1.925E 01	1.985E 01	1.095E 03	-4.079E 03	-2.175E 03	-1.904E 03	4.368E 03	4.963E 01	2.568E-02	5.117E 01	2.648E-02
6.694E 01	1.098E 01	9.390E 00	1.260E 03	-4.211E 03	-2.227E 03	-1.984E 03	4.583E 03	2.831E 01	1.464E-02	2.421E 01	1.252E-02
6.761E 01	7.779E 00	9.412E 00	1.450E 03	-4.254E 03	-2.243E 03	-2.011E 03	4.665E 03	2.005E 01	1.038E-02	2.427E 01	1.255E-02
6.838E 01	4.100E 00	7.124E 00	1.643E 03	-4.303E 03	-2.257E 03	-2.045E 03	4.760E 03	1.057E 01	5.468E-03	1.837E 01	9.502E-03
6.910E 01	3.499E 00	4.985E 00	1.768E 03	-4.351E 03	-2.268E 03	-2.083E 03	4.848E 03	9.021E 00	4.667E-03	1.285E 01	6.649E-03
6.971E 01	2.990E 00	4.135E 00	1.852E 03	-4.389E 03	-2.275E 03	-2.114E 03	4.922E 03	7.708E 00	3.988E-03	1.066E 01	5.515E-03
7.066E 01	1.933E 00	2.810E 00	1.945E 03	-4.435E 03	-2.284E 03	-2.152E 03	5.036E 03	4.984E 00	2.579E-03	7.244E 00	3.748E-03
7.109E 01	1.455E 00	2.655E 00	1.976E 03	-4.451E 03	-2.286E 03	-2.165E 03	5.088E 03	3.751E 00	1.941E-03	6.845E 00	3.542E-03
7.262E 01	1.601E 00	2.105E 00	2.067E 03	-4.500E 03	-2.295E 03	-2.204E 03	5.273E 03	4.127E 00	2.135E-03	5.427E 00	2.808E-03
7.277E 01	1.615E 00	1.969E 00	2.074E 03	-4.504E 03	-2.296E 03	-2.208E 03	5.290E 03	4.163E 00	2.154E-03	5.076E 00	2.626E-03
7.352E 01	1.674E 00	1.290E 00	2.130E 03	-4.526E 03	-2.300E 03	-2.228E 03	5.374E 03	4.317E 00	2.233E-03	3.326E 00	1.721E-03
7.352E 01	1.675E 00	1.286E 00	2.132E 03	-4.528E 03	-2.300E 03	-2.228E 03	5.375E 03	4.318E 00	2.234E-03	3.316E 00	1.716E-03
7.485E 01	1.780E 00	0.000	2.169E 03	-4.576E 03	-2.307E 03	-2.269E 03	5.427E 03	4.589E 00	2.374E-03	0.000	0.000
7.770E 01	2.560E 00	0.000	2.256E 03	-4.589E 03	-2.320E 03	-2.269E 03	5.525E 03	6.600E 00	3.414E-03	0.000	0.000
8.160E 01	1.860E 00	0.000	2.350E 03	-4.604E 03	-2.335E 03	-2.269E 03	5.630E 03	4.795E 00	2.481E-03	0.000	0.000
8.441E 01	1.840E 00	0.000	2.391E 03	-4.619E 03	-2.349E 03	-2.269E 03	5.684E 03	4.743E 00	2.454E-03	0.000	0.000
8.727E 01	3.235E 00	0.000	2.453E 03	-4.643E 03	-2.374E 03	-2.269E 03	5.707E 03	8.340E 00	4.315E-03	0.000	0.000
8.727E 01	3.238E 00	0.000	2.453E 03	-4.643E 03	-2.374E 03	-2.269E 03	5.707E 03	8.347E 00	4.319E-03	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.206E 02	1.208E 02	2.222E-03	4.401E-02
4.041E 01	1.875E-01	1.210E 02	2.502E-03	4.045E-02
4.128E 01	1.738E 01	1.384E 02	2.612E-03	4.658E-02
4.129E 01	1.881E-01	1.385E 02	2.414E-03	4.952E-02
4.136E 01	1.189E 00	1.397E 02	2.389E-03	5.013E-02
4.150E 01	2.555E 00	1.423E 02	2.405E-03	5.277E-02
4.246E 01	1.702E 01	1.593E 02	2.442E-03	5.717E-02
4.408E 01	2.611E 01	1.854E 02	2.608E-03	7.906E-02
4.431E 01	3.564E 00	1.890E 02	2.982E-03	6.992E-02
4.479E 01	7.669E 00	1.967E 02	3.006E-03	7.094E-02
4.480E 01	9.520E-02	1.968E 02	3.033E-03	7.065E-02
4.625E 01	2.219E 01	2.189E 02	3.328E-03	9.674E-02
4.626E 01	1.428E-01	2.191E 02	2.970E-03	7.609E-02
4.731E 01	1.329E 01	2.324E 02	2.944E-03	7.653E-02
4.732E 01	9.642E-02	2.325E 02	3.057E-03	7.354E-02
4.811E 01	9.659E 00	2.421E 02	3.009E-03	7.279E-02
4.876E 01	8.466E 00	2.506E 02	3.276E-03	8.328E-02
4.877E 01	1.359E-01	2.507E 02	2.989E-03	6.993E-02
4.930E 01	6.939E 00	2.577E 02	2.917E-03	6.543E-02
5.071E 01	1.776E 01	2.754E 02	2.865E-03	5.931E-02
5.281E 01	2.459E 01	3.000E 02	2.882E-03	4.709E-02
5.331E 01	5.783E 00	3.058E 02	2.964E-03	4.265E-02
5.406E 01	8.590E 00	3.144E 02	2.924E-03	4.052E-02
5.482E 01	8.394E 00	3.228E 02	2.921E-03	3.786E-02
5.576E 01	1.003E 01	3.328E 02	2.904E-03	3.553E-02
5.624E 01	3.180E 00	3.360E 02	2.881E-03	3.231E-02
5.630E 01	4.833E-01	3.365E 02	3.066E-03	2.597E-02
5.644E 01	1.257E 00	3.378E 02	2.860E-03	2.727E-02
5.652E 01	7.378E-01	3.385E 02	3.357E-03	2.811E-02
5.680E 01	2.709E 00	3.412E 02	3.350E-03	2.767E-02
5.702E 01	2.217E 00	3.434E 02	3.347E-03	2.674E-02
5.775E 01	7.349E 00	3.508E 02	3.357E-03	2.366E-02
5.877E 01	1.137E 01	3.621E 02	3.494E-03	1.452E-02
6.078E 01	2.133E 01	3.835E 02	3.312E-03	3.098E-02
6.220E 01	1.349E 01	3.970E 02	3.303E-03	3.005E-02
6.466E 01	2.227E 01	4.192E 02	3.327E-03	3.148E-02
6.504E 01	2.982E 00	4.222E 02	3.369E-03	3.084E-02
6.508E 01	3.026E-01	4.225E 02	3.450E-03	3.164E-02
6.528E 01	1.538E 00	4.241E 02	3.448E-03	3.142E-02
6.694E 01	1.269E 01	4.367E 02	3.395E-03	2.274E-02
6.761E 01	4.576E 00	4.413E 02	3.384E-03	2.050E-02
6.838E 01	4.760E 00	4.461E 02	3.349E-03	1.549E-02
6.910E 01	3.778E 00	4.499E 02	3.317E-03	1.272E-02
6.971E 01	2.834E 00	4.527E 02	3.298E-03	1.122E-02
7.066E 01	3.745E 00	4.564E 02	3.238E-03	8.277E-03
7.109E 01	1.445E 00	4.579E 02	3.213E-03	7.418E-03
7.262E 01	4.743E 00	4.626E 02	3.190E-03	6.835E-03
7.277E 01	4.249E-01	4.630E 02	3.184E-03	6.661E-03
7.352E 01	1.946E 00	4.650E 02	3.152E-03	5.751E-03
7.352E 01	3.507E-03	4.650E 02	3.151E-03	5.746E-03
7.485E 01	1.109E 00	4.682E 02	3.170E-03	6.600E-03
7.770E 01	2.658E 00	4.688E 02	3.212E-03	8.600E-03
8.160E 01	2.859E 00	4.717E 02	3.139E-03	6.741E-03
8.441E 01	1.335E 00	4.730E 02	3.123E-03	6.654E-03
8.727E 01	6.572E-01	4.737E 02	3.199E-03	1.015E-02
8.727E 01	0.000	4.737E 02	3.200E-03	1.016E-02

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1871.	(LBF)
MEASURED THRUST	1601.	(LBF)
CALCULATED SPECIFIC IMPULSE	2291.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1960.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.7466	
MEASURED THRUST COEFFICIENT	0.6389	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	6964.	(LBF)
NET THRUST	1911.	(LBF)
SPECIFIC IMPULSE	2340.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.7627	

MOMENTUM AND FORCES

INLET FRICTION DRAG	120.8	(LBF)
INLET MOMENTUM CHANGE	-763.4	(LBF)
COMBUSTOR FRICTION DRAG	301.4	(LBF)
COMBUSTOR STRUT DRAG	14.64	(LBF)
COMBUSTOR MOMENTUM CHANGE	1329.	(LBF)
NOZZLE FRICTION DRAG	51.48	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1306.	(LBF)
NOZZLE PRESSURE INTEGRAL	1357.	(LBF)
EXTERNAL FRICTION DRAG	0.00	(LBF)
EXTERNAL PRESSURE INTEGRAL	0.	(LBF)
TOTAL EXTERNAL DRAG	-1562.	(LBF)
TOTAL STRUT DRAG	14.64	(LBF)
CAVITY FORCE	-1202.	(LBF)
CALCULATED LOAD CELL FORCE	-893.	(LBF)
MEASURED LOAD CELL FORCE	-1163.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0,	0.0, -167.7, -124.7,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.2989	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.183	(IN)
NOZZLE SHROUD TRAILING EDGE	73.523	(IN)
NOZZLE PLUG TRAILING EDGE	87.275	(IN)
STRUT LEADING EDGE	56.439	(IN)
STRUT TRAILING EDGE	65.039	(IN)
COMBUSTOR EXIT	65.039	(IN)

INLET

ANGLE OF ATTACK	0.000	(DEGREES)
MASS FLOW RATIO	0.9882	
ADDITIVE DRAG COEFFICIENT	0.0000	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1606	
DELTA PT2	0.1193	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.5713	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1629	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8915	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9047	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9348	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8871	
ENTHALPY AT P0 - SUPERSONIC	-4.72	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	28.34	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0302	
EQUIVALENCE RATIO	1.019	
COMBUSTOR EFFICIENCY	1.000	
TOTAL PRESSURE RATIO	0.1631	
COMBUSTOR EFFECTIVENESS	0.8776	
INJECTOR DISCHARGE COEFFICIENTS	0.8090, 0.6841, 0.7912, 0.6794	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9404	
NOZZLE COEFFICIENT - CT	0.8524	
PROCESS EFFICIENCY	0.8334	
KINETIC ENERGY EFFICIENCY	0.8648	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.284	B
1C	44.300	
2A	48.759	D
2C	46.250	E
3A	54.049	
3B	56.234	
4	44.784	

Reading 71

$t = 160.54$ sec.

READING = 0071 BLOCK = 59 TIME = 160.538 MACH 6.0 PT = 742.749 TT = 2897.1

3-3-75

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H	GAMA	MOLWT SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	TVAC	PHI	ETAF
WIND TUNNEL		1	0 5													
0.000	742.749	2897	639.2(765)	1.2965	28.898 2542											
0.000	0.375	385	=36.5(93)	1.3985	28.897 963	6.037	5815	1.818	0.10575	25.269	0.9329	4654	9.556	184.3		
SPIKE TIP NS		2	0 5													
0.600	18.200	2897	639.2(765)	1.2964	28.897 2542											
0.600	16.549	2835	620.5(747)	1.2984	28.897 2516	0.385	969	2.073	0.10575	25.269	0.9329	4715	1.592	186.6		
WIND TUNNEL		3	0 0													
0.000	742.749	2897	639.2(765)	1.2965	28.898 2542											
0.000	0.383	388	=35.9(93)	1.3986	28.897 966	6.016	5812	1.818	0.10739	25.659	0.9329	4727	9.700	184.2		
SPIKE TIP NS		4	0 0													
0.600	18.200	2897	639.2(765)	1.2964	28.897 2542											
0.600	16.491	2832	619.8(744)	1.2985	28.897 2515	0.397	986	2.073	0.10739	25.659	0.9329	4727	1.646	184.2		
INLET THROAT		5	0 4													
40.400	185.499	2859	627.7(754)	1.2977	28.897 2526											
40.400	18.590	1637	279.1(408)	1.3413	28.897 1943	2.149	4177	1.909	0.88523	25.269	0.1114	3810	57.457	150.8		
INLET UPNRSK		6	0 3													
40.400	185.499	2859	627.7(754)	1.2977	28.897 2526											
40.400	15.787	1571	261.4(390)	1.3446	28.897 1906	2.246	4282	1.909	0.80476	25.269	0.1226	3859	53.550	152.7		
INLET DNNRSK		7	0 4													
40.400	107.681	2859	627.7(754)	1.2977	28.897 2526											
40.400	90.110	2744	593.4(721)	1.3014	28.897 2479	0.929	1310	1.946	0.80476	25.269	0.1226	3859	16.388	192.7		
COMBUSTOR	0	8	1 4													
40.410	185.137	2859	627.7(754)	1.2977	28.897 2526											
40.410	18.571	1638	279.5(409)	1.3412	28.897 1944	2.147	4174	1.909	0.88513	25.269	0.1115	3809	57.421	150.7		
COMBUSTOR	0	9	2 4													
41.306	152.720	2850	625.0(751)	1.2980	28.897 2523											
41.306	21.540	1779	317.8(447)	1.3347	28.897 2021	1.940	3920	1.921	0.88770	25.269	0.1111	3692	54.080	146.1		
COMBUSTOR	0	10	3 4													
41.371	150.619	2849	624.7(751)	1.2980	28.897 2522											
41.371	21.800	1790	320.9(450)	1.3343	28.897 2027											
						1.924	3899	1.922	0.88814	25.269	0.1111	3683	53.818	145.7		
COMBUSTOR	0	11	4 4													
41.500	146.488	2847	624.2(751)	1.2981	28.897 2522											
41.500	22.319	1812	326.9(456)	1.3334	28.897 2039	1.892	3857	1.924	0.88892	25.269	0.1110	3664	53.259	145.0		
COMBUSTOR	0	12	5 5													
42.460	127.528	2832	619.8(746)	1.2986	28.897 2516											
42.460	24.667	1912	354.6(484)	1.3296	28.897 2091	1.742	3643	1.932	0.87885	25.269	0.1123	3570	49.753	141.3		
COMBUSTOR	0	13	6 4													
44.091	113.898	2801	610.6(737)	1.2995	28.897 2503											
44.091	25.570	1961	368.1(497)	1.3278	28.897 2116	1.646	3483	1.936	0.84957	25.269	0.1161	3496	45.991	138.4		
COMBUSTOR	0	14	7 4													
44.310	112.529	2797	609.3(736)	1.2997	28.897 2501											
44.310	25.777	1967	369.9(499)	1.3275	28.897 2120	1.633	3461	1.937	0.84812	25.269	0.1163	3486	45.617	138.0		
COMBUSTOR	0	15	8 4													
44.800	109.008	2788	606.5(733)	1.3000	28.897 2497											
44.800	26.393	1987	375.4(504)	1.3268	28.897 2130	1.597	3400	1.938	0.84458	25.269	0.1168	3460	44.627	136.9		
COMBUSTOR	0	16	9 4													
44.806	108.983	2788	606.5(733)	1.3000	28.897 2497											
44.806	26.415	1987	375.6(505)	1.3268	28.897 2130	1.596	3399	1.938	0.84482	25.269	0.1168	3460	44.625	136.9		
COMBUSTOR	0	17	10 5													
46.260	98.219	2763	599.1(726)	1.3008	28.897 2487											
46.260	25.980	2011	382.3(511)	1.3259	28.897 2142	1.538	3294	1.943	0.79556	25.269	0.1240	3412	40.723	135.0		
COMBUSTOR	0	18	11 5													
47.310	91.218	2747	594.3(721)	1.3013	28.897 2480											
47.310	24.065	1998	378.4(507)	1.3264	28.897 2135	1.539	3287	1.946	0.74042	25.269	0.1332	3403	37.818	134.7		

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	TVAC	PHT	ETAC
COMBUSTOR	0	19	12	5														
47.331	91.132	2744	594.2(	791)	1.3013	28.897	2480											
47.331	24.084	1998	378.6(	508)	1.3264	28.897	2135	1.538	3285	1.946	0.74034	25.269	0.1333	3402	37.790	134.6		
COMBUSTOR	0	20	13	5														
48.110	86.615	2735	590.8(	787)	1.3016	28.897	2475											
48.110	21.781	1965	369.4(	498)	1.3276	28.897	2119	1.571	3329	1.948	0.68995	25.269	0.1430	3412	35.691	135.0		
COMBUSTOR	0	21	14	5														
48.791	82.798	2726	588.1(	785)	1.3019	28.897	2471											
48.791	19.085	1917	355.8(	485)	1.3294	28.897	2094	1.628	3409	1.950	0.63485	25.269	0.1554	3437	33.635	136.0		
COMBUSTOR	0	22	15	5														
49.311	80.338	2719	586.2(	783)	1.3022	28.897	2468											
49.311	17.095	1874	344.0(	473)	1.3310	28.897	2072	1.680	3480	1.952	0.59373	25.269	0.1662	3461	32.114	137.0		
COMBUSTOR	0	23	16	5														
50.721	74.469	2703	581.4(	709)	1.3027	28.897	2461											
50.721	13.313	1783	318.9(	448)	1.3346	28.897	2023											
								1.791	3624	1.955	0.50603	25.269	0.1950	3511	28.497	138.9		
COMBUSTOR	0	24	17	5														
52.821	67.252	2683	575.5(	703)	1.3033	28.897	2453											
52.821	9.930	1685	292.3(	421)	1.3389	28.897	1970	1.910	3764	1.960	0.41475	25.269	0.2379	3561	24.262	140.9		
COMBUSTOR	0	25	18	5														
53.321	66.043	2679	574.3(	702)	1.3034	28.897	2451											
53.321	9.324	1664	286.4(	416)	1.3400	28.897	1958	1.938	3795	1.961	0.39780	25.269	0.2480	3573	23.463	141.4		
COMBUSTOR	0	26	19	5														
54.071	64.273	2673	572.6(	700)	1.3036	28.897	2449											
54.071	8.544	1634	278.5(	408)	1.3414	28.897	1942	1.975	3836	1.962	0.37497	25.269	0.2631	3588	22.353	142.0		
COMBUSTOR	0	27	20	5														
54.831	62.371	2668	571.0(	698)	1.3038	28.897	2446											
54.831	7.899	1611	272.1(	401)	1.3426	28.897	1929	2.005	3867	1.963	0.35460	25.269	0.2782	3600	21.309	142.5		
COMBUSTOR	0	28	21	5														
55.760	60.188	2662	569.1(	697)	1.3040	28.897	2444											
55.760	7.239	1586	265.4(	394)	1.3439	28.897	1915	2.036	3899	1.965	0.33285	25.269	0.2964	3612	20.167	142.9		
COMBUSTOR	0	29	22	4														
56.256	52.319	2659	568.3(	696)	1.3041	28.897	2442											
56.256	5.503	1530	250.5(	380)	1.3468	28.897	1883	2.118	3988	1.974	0.26817	25.269	0.3679	3650	16.619	144.5		
COMBUSTOR	0	30	23	5														
56.311	52.263	2658	568.2(	696)	1.3041	28.897	2442											
56.311	5.478	1529	250.1(	379)	1.3469	28.897	1882	2.120	3990	1.975	0.26737	25.269	0.3690	3651	16.577	144.5		
COMBUSTOR	0	31	24	5														
56.451	52.117	2658	567.9(	695)	1.3041	28.897	2442											
56.451	5.419	1525	249.1(	378)	1.3471	28.897	1880	2.125	3994	1.975	0.26545	25.269	0.3717	3653	16.477	144.6		
COMBUSTOR	0	32	25	4														
56.531	52.860	2657	567.8(	695)	1.3041	28.897	2442											
56.531	5.472	1523	248.6(	378)	1.3472	28.897	1879	2.127	3997	1.974	0.26857	25.269	0.3673	3654	16.681	144.6		
COMBUSTOR	0	33	26	4														
56.811	53.077	2656	567.4(	695)	1.3042	28.897	2441											
56.811	5.417	1516	246.8(	376)	1.3476	28.897	1875	2.136	4005	1.973	0.26754	25.269	0.3688	3657	16.651	144.7		
COMBUSTOR	0	34	27	4														
57.037	53.293	2655	567.0(	695)	1.3042	28.897	2441											
57.037	5.382	1511	245.5(	375)	1.3478	28.897	1872	2.142	4011	1.973	0.26708	25.269	0.3694	3659	16.647	144.8		
COMBUSTOR	0	35	28	4														
57.761	53.247	2651	565.9(	693)	1.3043	28.897	2439											
57.761	5.234	1499	242.1(	371)	1.3486	28.897	1865	2.159	4025	1.972	0.26289	25.269	0.3753	3665	16.445	145.0		
COMBUSTOR	0	36	29	4														
58.781	53.408	2646	564.6(	692)	1.3045	28.897	2437											
58.791	5.157	1449	239.5(	369)	1.3491	28.897	1859	2.169	4033	1.972	0.26122	25.269	0.3777	3666	16.372	145.1		
COMBUSTOR	0	37	30	6														
60.791	54.300	2639	562.5(	690)	1.3047	28.897	2434											
60.791	5.390	1495	241.2(	370)	1.3488	28.897	1863											
								2.153	4010	1.970	0.27031	25.269	0.3650	3653	16.804	144.6		

READING # 0071 BLOCK # 59 TTWF = 160.538 MACH 6.0 PT = 742.749 TT = 2897.1

	P	T	H		GAMMA	MOLWT	SPEV	MACH	VEL	S	W/A	A	A/AC	MOMTM	Q	TVAC	PHI	ETAC
COMBUSTOR	0	38	31	6														
62.211	54.952	2635	561.3(	689)	1.3048	28.897	2432											
62.211	5.587	1502	243.0(	372)	1.3484	28.897	1867	2.138	3991	1.968	0.27763	25.269	0.3553	3643	17.220	144.2		
COMBUSTOR	0	39	32	4														
64.675	50.816	2628	559.2(	687)	1.3051	28.897	2429											
64.675	5.377	1513	245.9(	375)	1.3478	28.897	1873	2.114	3959	1.973	0.26316	25.269	0.3749	3626	16.193	143.5		
COMBUSTOR	0	40	33	4														
65.051	47.080	2627	558.9(	686)	1.3051	28.897	2429											
65.051	5.010	1514	246.3(	375)	1.3477	28.897	1874	2.110	3955	1.978	0.24466	25.269	0.4032	3623	15.036	143.4		
NOZZLE AE		41	34	3														
87.287	47.080	2627	558.9(	686)	1.3051	28.897	2429											
87.287	0.421	774	57.5(	187)	1.3912	28.897	1361	3.681	5009	1.978	0.05093	25.269	1.9371	4143	3.964	163.9		
NOZZLE PO		42	35	3														
87.287	47.080	2627	558.9(	686)	1.3051	28.897	2429											
87.287	0.375	749	51.5(	181)	1.3923	28.897	1340	3.762	5039	1.978	0.04716	25.269	2.0918	4158	3.693	164.6		
FICTIVE COMBUSTR		62	55	0														
65.051	185.499	2627	558.9(	686)	1.3051	28.897	2429											
65.051	0.375	507	87.1(	192)	1.3989	28.897	1105	4.815	5321	1.884	0.07352	25.269	1.3419	4308	6.080	170.5		
FICTIVE NUZZLE		63	56	0														
87.287	43.625	2603	551.8(	680)	1.3059	28.897	2418											
87.287	0.433	788	61.1(	190)	1.3905	28.897	1373	3.608	4955	1.981	0.05093	25.269	1.9371	4107	3.922	162.5		

XARq	P-IR	P-DR	PDA	QDX	Q-IR	C-DB	CALL	P-IR/PSO	F-IR/PTO	P-DB/PSO	P-DR/PTO
6.981E-01	1.000E 00	0.000	-4.829E-01	0.000	0.000	0.000	2.870E-02	2.774E 00	1.000E-03	0.000	0.000
1.836E 01	1.000E 00	0.000	-3.464E 01	0.000	0.000	0.000	1.434E 02	2.774E 00	1.000E-03	0.000	0.000
3.070E 01	2.875E 00	0.000	-1.933E 02	0.000	0.000	0.000	5.053E 02	7.668E 00	3.671E-03	0.000	0.000
3.50AE 01	3.844E 00	0.000	-4.111E 02	0.000	0.000	0.000	6.804E 02	1.025E 01	5.176E-03	0.000	0.000
3.519E 01	4.161E 00	5.538E 00	-4.750E 02	0.000	0.000	0.000	6.852E 02	1.110E 01	5.602E-03	1.477E 01	7.456E-03
3.519E 01	4.178E 00	5.510E 00	-4.751E 02	0.000	0.000	0.000	6.855E 02	1.114E 01	5.625E-03	1.470E 01	7.418E-03
3.555E 01	5.210E 00	3.825E 00	-4.882E 02	0.000	0.000	0.000	7.211E 02	1.390E 01	7.010E-03	1.020E 01	5.149E-03
3.586E 01	5.021E 00	2.350E 00	-5.091E 02	-1.267E 02	-1.267E 02	0.000	7.527E 02	1.339E 01	6.760E-03	6.268E 00	3.164E-03
3.606E 01	4.900E 00	3.506E 00	-5.228E 02	-1.281E 02	-1.281E 02	0.000	7.731E 02	1.307E 01	6.597E-03	9.351E 00	4.720E-03
3.648E 01	4.197E 00	5.944E 00	-5.417E 02	-1.313E 02	-1.313E 02	0.000	8.167E 02	1.120E 01	5.651E-03	1.585E 01	8.003E-03
3.701E 01	5.255E 00	9.021E 00	-5.640E 02	-1.552E 02	-1.354E 02	-1.981E 01	8.729E 02	1.402E 01	7.075E-03	2.406E 01	1.214E-02
3.732E 01	4.865E 00	1.082E 01	-5.752E 02	-1.643E 02	-1.380E 02	-2.636E 01	9.061E 02	1.298E 01	6.550E-03	2.887E 01	1.457E-02
3.803E 01	3.975E 00	1.450E 01	-5.871E 02	-1.851E 02	-1.441E 02	-4.096E 01	9.836E 02	1.060E 01	5.352E-03	3.868E 01	1.952E-02
3.834E 01	7.612E 00	1.611E 01	-5.903E 02	-1.948E 02	-1.475E 02	-4.732E 01	1.018E 03	2.030E 01	1.025E-02	4.298E 01	2.169E-02
3.875E 01	1.240E 01	1.756E 01	-6.093E 02	-2.092E 02	-1.536E 02	-5.565E 01	1.065E 03	3.307E 01	1.669E-02	4.684E 01	2.364E-02
3.881E 01	1.311E 01	1.777E 01	-6.126E 02	-2.115E 02	-1.546E 02	-5.698E 01	1.072E 03	3.497E 01	1.765E-02	4.741E 01	2.393E-02
3.901E 01	1.544E 01	1.758E 01	-6.231E 02	-2.195E 02	-1.585E 02	-6.091E 01	1.094E 03	4.118E 01	2.079E-02	4.689E 01	2.367E-02
3.932E 01	1.838E 01	1.727E 01	-6.427E 02	-2.329E 02	-1.657E 02	-6.719E 01	1.130E 03	4.902E 01	2.475E-02	4.608E 01	2.326E-02
3.950E 01	2.007E 01	1.286E 01	-6.563E 02	-2.413E 02	-1.705E 02	-7.078E 01	1.151E 03	5.354E 01	2.703E-02	3.430E 01	1.731E-02
3.981E 01	1.787E 01	5.200E 00	-6.838E 02	-2.570E 02	-1.801E 02	-7.690E 01	1.187E 03	4.766E 01	2.406E-02	1.387E 01	7.001E-03
4.000E 01	1.653E 01	4.977E 00	-7.011E 02	-2.674E 02	-1.868E 02	-8.057E 01	1.209E 03	4.408E 01	2.225E-02	1.328E 01	6.701E-03
4.040E 01	1.982E 01	4.506E 00	-7.377E 02	-2.907E 02	-2.021E 02	-8.859E 01	1.256E 03	5.287E 01	2.669E-02	1.202E 01	6.067E-03
4.041E 01	1.990E 01	4.494E 00	-7.386E 02	-2.913E 02	-2.025E 02	-8.880E 01	1.257E 03	5.308E 01	2.680E-02	1.199E 01	6.051E-03
4.131E 01	2.728E 01	3.439E 00	-8.406E 02	-3.610E 02	-2.410E 02	-1.201E 02	1.363E 03	7.275E 01	3.672E-02	9.173E 00	4.630E-03
4.137E 01	2.781E 01	3.362E 00	-8.488E 02	-3.673E 02	-2.440E 02	-1.233E 02	1.371E 03	7.418E 01	3.744E-02	8.968E 00	4.527E-03
4.150E 01	2.887E 01	3.965E 00	-8.654E 02	-3.801E 02	-2.501E 02	-1.300E 02	1.386E 03	7.702E 01	3.888E-02	1.057E 01	5.338E-03
4.246E 01	1.950E 01	8.440E 00	-9.437E 02	-4.925E 02	-2.989E 02	-1.936E 02	1.501E 03	5.201E 01	2.625E-02	2.251E 01	1.136E-02
4.409E 01	2.441E 01	1.604E 01	-9.923E 02	-7.251E 02	-3.879E 02	-3.372E 02	1.698E 03	6.512E 01	3.287E-02	4.279E 01	2.160E-02
4.431E 01	2.507E 01	1.560E 01	-9.992E 02	-7.581E 02	-4.001E 02	-3.579E 02	1.725E 03	6.688E 01	3.376E-02	4.162E 01	2.101E-02
4.480E 01	2.655E 01	1.462E 01	-1.018E 03	-8.281E 02	-4.275E 02	-4.006E 02	1.785E 03	7.081E 01	3.575E-02	3.900E 01	1.969E-02
4.481E 01	2.652E 01	1.461E 01	-1.018E 03	-8.290E 02	-4.279E 02	-4.011E 02	1.786E 03	7.074E 01	3.571E-02	3.897E 01	1.967E-02
4.626E 01	2.004E 01	1.170E 01	-1.045E 03	-1.014E 03	-5.062E 02	-5.093E 02	1.964E 03	5.345E 01	2.698E-02	3.120E 01	1.575E-02
4.731E 01	1.536E 01	9.592E 00	-1.040E 03	-1.136E 03	-5.586E 02	-5.775E 02	2.094E 03	4.096E 01	2.067E-02	2.558E 01	1.291E-02
4.733E 01	1.522E 01	9.550E 00	-1.041E 03	-1.138E 03	-5.597E 02	-5.788E 02	2.097E 03	4.059E 01	2.049E-02	2.547E 01	1.286E-02
4.811E 01	1.010E 01	1.012E 01	-1.021E 03	-1.224E 03	-5.964E 02	-6.278E 02	2.194E 03	2.694E 01	1.360E-02	2.698E 01	1.362E-02
4.878E 01	1.060E 01	1.060E 01	-9.875E 02	-1.292E 03	-6.265E 02	-6.650E 02	2.278E 03	2.828E 01	1.427E-02	2.828E 01	1.427E-02
4.931E 01	1.099E 01	1.099E 01	-9.577E 02	-1.343E 03	-6.494E 02	-6.932E 02	2.345E 03	2.931E 01	1.479E-02	2.931E 01	1.479E-02
5.072E 01	6.362E 00	6.362E 00	-8.936E 02	-1.463E 03	-7.061E 02	-7.567E 02	2.522E 03	1.697E 01	8.566E-03	1.697E 01	8.566E-03
5.282E 01	6.150E 00	6.150E 00	-8.247E 02	-1.611E 03	-7.796E 02	-8.314E 02	2.788E 03	1.640E 01	8.280E-03	1.640E 01	8.280E-03
5.332E 01	5.915E 00	5.915E 00	-8.090E 02	-1.641E 03	-7.952E 02	-8.461E 02	2.852E 03	1.578E 01	7.964E-03	1.578E 01	7.964E-03
5.407E 01	4.877E 00	4.877E 00	-7.881E 02	-1.684E 03	-8.173E 02	-8.671E 02	2.948E 03	1.301E 01	6.566E-03	1.301E 01	6.566E-03
5.482E 01	3.825E 00	3.825E 00	-7.713E 02	-1.725E 03	-8.380E 02	-8.873E 02	3.045E 03	1.020E 01	5.150E-03	1.020E 01	5.150E-03
5.576E 01	3.860E 00	3.860E 00	-7.534E 02	-1.772E 03	-8.610E 02	-9.106E 02	3.165E 03	1.030E 01	5.197E-03	1.030E 01	5.197E-03
5.626E 01	3.879E 00	3.879E 00	-7.126E 02	-1.794E 03	-8.718E 02	-9.223E 02	3.209E 03	1.035E 01	5.222E-03	1.035E 01	5.222E-03
5.631E 01	1.912E 00	3.881E 00	-7.115E 02	-1.796E 03	-8.725E 02	-9.236E 02	3.216E 03	5.101E 00	2.575E-03	1.035E 01	5.225E-03
5.645E 01	1.912E 00	3.886E 00	-7.090E 02	-1.802E 03	-8.750E 02	-9.268E 02	3.234E 03	5.101E 00	2.575E-03	1.037E 01	5.232E-03
5.653E 01	3.889E 00	3.889E 00	-7.074E 02	-1.805E 03	-8.764E 02	-9.287E 02	3.245E 03	1.037E 01	5.236E-03	1.037E 01	5.236E-03
5.681E 01	3.900E 00	3.900E 00	-7.023E 02	-1.816E 03	-8.813E 02	-9.351E 02	3.280E 03	1.040E 01	5.251E-03	1.040E 01	5.251E-03
5.704E 01	3.857E 00	3.857E 00	-6.986E 02	-1.825E 03	-8.850E 02	-9.402E 02	3.309E 03	1.029E 01	5.193E-03	1.029E 01	5.193E-03
5.776E 01	3.720E 00	3.720E 00	-6.883E 02	-1.852E 03	-8.960E 02	-9.545E 02	3.402E 03	9.922E 00	5.008E-03	9.922E 00	5.008E-03
5.878E 01	3.862E 00	3.862E 00	-6.795E 02	-1.887E 03	-9.087E 02	-9.704E 02	3.532E 03	1.030E 01	5.200E-03	1.030E 01	5.200E-03
6.079E 01	1.325E 00	1.325E 00	-6.789E 02	-1.940E 03	-9.266E 02	-1.013E 03	3.790E 03	3.534E 00	1.784E-03	3.534E 00	1.784E-03
6.221E 01	1.425E 00	1.425E 00	-6.789E 02	-1.969E 03	-9.366E 02	-1.032E 03	3.972E 03	3.801E 00	1.919E-03	3.801E 00	1.919E-03
6.467E 01	3.545E 00	3.545E 00	-6.789E 02	-2.023E 03	-9.554E 02	-1.067E 03	4.289E 03	9.455E 00	4.773E-03	9.455E 00	4.773E-03
6.505E 01	3.900E 00	3.868E 00	-6.789E 02	-2.031E 03	-9.584E 02	-1.073E 03	4.337E 03	1.040E 01	5.251E-03	1.032E 01	5.208E-03
6.509E 01	3.900E 00	3.903E 00	-6.789E 02	-2.032E 03	-9.588E 02	-1.073E 03	4.342E 03	1.040E 01	5.251E-03	1.041E 01	5.255E-03

READING = 0071 BLOCK = 59 TIME = 160.538 MACH 6.0 PI = 742.749 TT = 2897.1

XABS	P=IB	P=OB	PDA	QOX	Q=IB	Q=OB	CA=ALL	P=IB/PTO	P=IB/PSO	P=OB/PSO	P=OB/PTO
6.529E 01	3.749E 00	4.075E 00	=6.789E 02	=2.037E 03	=9.604E 02	=1.077E 03	4.368E 03	1.000E 01	5.048E=03	1.047E 01	5.486E=03
6.695E 01	2.500E 00	4.810E 00	=6.351E 02	=2.073E 03	=9.718E 02	=1.101E 03	4.583E 03	6.668E 00	3.366E=03	1.283E 01	6.476E=03
6.762E 01	1.984E 00	3.457E 00	=5.708E 02	=2.085E 03	=9.755E 02	=1.110E 03	4.665E 03	5.290E 00	2.671E=03	9.222E 00	4.655E=03
6.839E 01	1.390E 00	2.686E 00	=5.074E 02	=2.099E 03	=9.792E 02	=1.120E 03	4.760E 03	3.707E 00	1.871E=03	7.165E 00	3.617E=03
6.911E 01	1.209E 00	1.965E 00	=4.619E 02	=2.111E 03	=9.821E 02	=1.129E 03	4.848E 03	3.224E 00	1.627E=03	5.241E 00	2.646E=03
6.972E 01	1.055E 00	1.595E 00	=4.309E 02	=2.121E 03	=9.842E 02	=1.136E 03	4.922E 03	2.814E 00	1.420E=03	4.255E 00	2.148E=03
7.067E 01	1.007E 00	1.020E 00	=3.939E 02	=2.137E 03	=9.869E 02	=1.150E 03	5.036E 03	2.685E 00	1.356E=03	2.721E 00	1.373E=03
7.110E 01	9.850E=01	1.079E 00	=3.793E 02	=2.144E 03	=9.879E 02	=1.156E 03	5.088E 03	2.627E 00	1.326E=03	2.879E 00	1.453E=03
7.263E 01	1.204E 00	1.290E 00	=3.248E 02	=2.165E 03	=9.910E 02	=1.174E 03	5.273E 03	3.210E 00	1.620E=03	3.441E 00	1.737E=03
7.278E 01	1.225E 00	1.135E 00	=3.195E 02	=2.167E 03	=9.912E 02	=1.176E 03	5.290E 03	3.267E 00	1.649E=03	3.027E 00	1.528E=03
7.353E 01	1.072E 00	3.600E=01	=2.890E 02	=2.178E 03	=9.924E 02	=1.185E 03	5.374E 03	2.859E 00	1.443E=03	9.602E=01	4.847E=04
7.353E 01	1.071E 00	3.559E=01	=2.883E 02	=2.178E 03	=9.924E 02	=1.185E 03	5.375E 03	2.856E 00	1.442E=03	9.491E=01	4.791E=04
7.486E 01	8.000E=01	0.000	=2.685E 02	=2.198E 03	=9.943E 02	=1.204E 03	5.427E 03	2.134E 00	1.077E=03	0.000	0.000
7.771E 01	8.050E=01	0.000	=2.364E 02	=2.201E 03	=9.972E 02	=1.204E 03	5.525E 03	2.147E 00	1.084E=03	0.000	0.000
8.161E 01	8.600E=01	0.000	=2.009E 02	=2.204E 03	=9.998E 02	=1.204E 03	5.630E 03	2.294E 00	1.158E=03	0.000	0.000
8.442E 01	6.050E=01	0.000	=1.846E 02	=2.206E 03	=1.002E 03	=1.204E 03	5.684E 03	1.614E 00	8.145E=04	0.000	0.000
8.728E 01	7.200E=01	0.000	=1.686E 02	=2.209E 03	=1.005E 03	=1.204E 03	5.707E 03	1.920E 00	9.690E=04	0.000	0.000
8.729E 01	7.202E=01	0.000	=1.686E 02	=2.209E 03	=1.005E 03	=1.204E 03	5.707E 03	1.921E 00	9.697E=04	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.294E 02	1.284E 02	2.434E-03	4.605E-02
4.041E 01	1.654E-01	1.286E 02	2.435E-03	4.607E-02
4.131E 01	1.472E 01	1.433E 02	2.551E-03	4.909E-02
4.137E 01	1.066E 00	1.444E 02	2.560E-03	4.934E-02
4.150E 01	2.120E 00	1.465E 02	2.577E-03	4.979E-02
4.246E 01	1.547E 01	1.619E 02	2.654E-03	5.115E-02
4.409E 01	2.528E 01	1.872E 02	2.698E-03	5.049E-02
4.431E 01	3.294E 00	1.905E 02	2.706E-03	5.058E-02
4.480E 01	7.333E 00	1.979E 02	2.729E-03	5.085E-02
4.481E 01	8.703E-02	1.979E 02	2.729E-03	5.088E-02
4.626E 01	2.096E 01	2.189E 02	2.768E-03	4.866E-02
4.731E 01	1.416E 01	2.331E 02	2.769E-03	4.525E-02
4.733E 01	2.753E-01	2.333E 02	2.770E-03	4.526E-02
4.811E 01	9.850E 00	2.432E 02	2.755E-03	4.184E-02
4.878E 01	7.975E 00	2.512E 02	2.726E-03	3.796E-02
4.931E 01	5.930E 00	2.571E 02	2.700E-03	3.503E-02
5.072E 01	1.437E 01	2.716E 02	2.641E-03	2.898E-02
5.282E 01	1.833E 01	2.898E 02	2.579E-03	2.297E-02
5.332E 01	3.910E 00	2.937E 02	2.564E-03	2.185E-02
5.407E 01	5.605E 00	2.993E 02	2.544E-03	2.038E-02
5.483E 01	5.390E 00	3.047E 02	2.528E-03	1.910E-02
5.576E 01	6.240E 00	3.109E 02	2.511E-03	1.776E-02
5.626E 01	2.043E 00	3.138E 02	2.458E-03	1.392E-02
5.631E 01	2.874E-01	3.133E 02	2.457E-03	1.387E-02
5.645E 01	7.214E-01	3.140E 02	2.455E-03	1.375E-02
5.653E 01	4.159E-01	3.144E 02	2.447E-03	1.386E-02
5.681E 01	1.453E 00	3.159E 02	2.439E-03	1.375E-02
5.704E 01	1.169E 00	3.170E 02	2.433E-03	1.369E-02
5.776E 01	3.719E 00	3.207E 02	2.420E-03	1.338E-02
5.878E 01	5.180E 00	3.259E 02	2.410E-03	1.322E-02
6.079E 01	1.032E 01	3.362E 02	2.410E-03	1.368E-02
6.221E 01	7.474E 00	3.437E 02	2.408E-03	1.404E-02
6.447E 01	1.280E 01	3.565E 02	2.439E-03	1.351E-02
6.505E 01	1.848E 00	3.584E 02	2.467E-03	1.271E-02
6.509E 01	1.798E-01	3.585E 02	2.441E-03	1.076E-02
6.529E 01	8.461E-01	3.594E 02	2.440E-03	1.078E-02
6.695E 01	6.984E 00	3.664E 02	2.419E-03	1.023E-02
6.762E 01	2.392E 00	3.688E 02	2.360E-03	8.247E-03
6.839E 01	2.344E 00	3.711E 02	2.304E-03	6.657E-03
6.911E 01	1.845E 00	3.730E 02	2.257E-03	5.517E-03
6.972E 01	1.356E 00	3.743E 02	2.221E-03	4.813E-03
7.067E 01	1.816E 00	3.761E 02	2.169E-03	3.924E-03
7.110E 01	7.583E-01	3.769E 02	2.170E-03	3.976E-03
7.263E 01	2.874E 00	3.798E 02	2.201E-03	4.576E-03
7.278E 01	2.802E-01	3.800E 02	2.190E-03	4.389E-03
7.353E 01	1.156E 00	3.812E 02	2.100E-03	3.004E-03
7.353E 01	1.855E-03	3.812E 02	2.099E-03	2.996E-03
7.486E 01	6.162E-01	3.818E 02	2.113E-03	3.259E-03
7.771E 01	1.209E 00	3.830E 02	2.104E-03	3.256E-03
8.161E 01	1.316E 00	3.843E 02	2.101E-03	3.399E-03
8.442E 01	6.213E-01	3.850E 02	2.031E-03	2.591E-03
8.728E 01	2.412E-01	3.852E 02	2.051E-03	2.941E-03
8.729E 01	0.000	3.852E 02	2.051E-03	2.942E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=569.	(LBF)
MEASURED THRUST	=649.	(LBF)
CALCULATED SPECIFIC IMPULSE	=569.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=649.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.2325	
MEASURED THRUST COEFFICIENT	=.2653	

REGENERATIVE-COOLED ENGINE PERFORMANCE

CALCULATED

STREAM THRUST	0.	(LBF)
NET THRUST	0.	(LBF)
SPECIFIC IMPULSE	0.	(LBF=SEC/LBM)
THRUST COEFFICIENT	0.0000	

MOMENTUM AND FORCES

INLET FRICTION DRAG	128.4	(LBF)
INLET MOMENTUM CHANGE	=866.1	(LBF)
COMBUSTOR FRICTION DRAG	230.0	(LBF)
COMBUSTOR STRUT DRAG	15.16	(LBF)
COMBUSTOR MOMENTUM CHANGE	=186.	(LBF)
NOZZLE FRICTION DRAG	26.84	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	483.	(LBF)
NOZZLE PRESSURE INTEGRAL	510.	(LBF)
EXTERNAL FRICTION DRAG	65.09	(LBF)
EXTERNAL PRESSURE INTEGRAL	=995.	(LBF)
TOTAL EXTERNAL DRAG	=1060.	(LBF)
TOTAL STRUT DRAG	15.16	(LBF)
CAVITY FORCE	=1137.	(LBF)
CALCULATED LOAD CELL FORCE	=2767.	(LBF)
MEASURED LOAD CELL FORCE	=2843.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3109	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.195	(IN)
NOZZLE SHROUD TRAILING EDGE	73.535	(IN)
NOZZLE PLUG TRAILING EDGE	87.287	(IN)
STRUT LEADING EDGE	56.451	(IN)
STRUT TRAILING EDGE	65.051	(IN)
COMBUSTOR EXIT	65.051	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.9329	
ADDITIVE DRAG COEFFICIENT	0.0053	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1426	
DELTA PT2	0.1196	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.2497	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1450	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8642	
INLET PROCESS EFFICIENCY = SUBSONIC	0.8958	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9196	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8859	
ENTHALPY AT P0 = SUPERSONIC	6.38	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	29.16	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0000
EQUIVALENCE RATIO	0.000
COMBUSTOR EFFICIENCY	0.000
TOTAL PRESSURE RATIO	0.2538
COMBUSTOR EFFECTIVENESS	0.6991
INJECTOR DISCHARGE COEFFICIENTS	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9914
NOZZLE COEFFICIENT = CT	0.9429
PROCESS EFFICIENCY	0.9893
KINETIC ENERGY EFFICIENCY	0.9819

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.296	
1C	44.300	
2A	48.771	
2C	46.250	
3A	54.061	
3B	56.246	
4	44.796	

Reading 71

$t' = 171.39$ sec.

3-3-75

RAMJET PERFORMANCE

SUMMARY REPORT

P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	A/A	A	A/AC	MOMTM	F	IVAC	PHI	ETAT
WIND TUNNEL	1	0	5														
0.000	743.249	2911	643.6(770)	1.2960	28.898	2548											
0.000	0.377	388	35.8(93)	1.3986	28.897	967	6.031	5830	1.819	0.10579	25.248	0.9318	4665	9.586	184.6		
SPIKE TIP NS	2	0	5														
0.600	18.187	2911	643.6(770)	1.2960	28.897	2548											
0.600	16.525	2848	624.6(751)	1.2980	28.897	2522	0.387	975	2.074	0.10579	25.248	0.9318	4709	1.603	186.5		
WIND TUNNEL	3	0	0														
0.000	743.249	2911	643.6(770)	1.2960	28.898	2548											
0.000	0.383	390	35.3(94)	1.3986	28.897	969	6.015	5828	1.819	0.10701	25.537	0.9318	4718	9.692	184.7		
SPIKE TIP NS	4	0	0														
0.600	18.187	2911	643.6(770)	1.2960	28.897	2548											
0.600	16.481	2846	624.0(751)	1.2981	28.897	2521	0.392	988	2.074	0.10701	25.537	0.9318	4718	1.644	184.7		
INLET THROAT	5	0	4														
40.400	185.190	2872	631.7(758)	1.2973	28.897	2532											
40.400	18.658	1648	282.3(411)	1.3407	28.897	1950	2.145	4182	1.911	0.88524	25.248	0.1114	3814	57.528	151.0		
INLET UPNRSK	6	0	3														
40.400	185.190	2872	631.7(758)	1.2973	28.897	2532											
40.400	15.877	1582	264.3(393)	1.3441	28.897	1913	2.242	4288	1.911	0.80476	25.248	0.1225	3863	53.622	153.0		
INLET DNNR8K	7	0	4														
40.400	107.871	2872	631.7(758)	1.2973	28.897	2532											
40.400	90.242	2756	597.2(734)	1.3010	28.897	2484	0.529	1315	1.948	0.80476	25.248	0.1225	3863	16.440	153.0		
COMBUSTOR	0	8	1 21														
40.410	158.032	2827	630.1(775)	1.2998	27.732	2567											
40.410	12.472	1518	244.9(392)	1.3487	27.732	1916	2.292	4391	1.985	0.88804	25.331	0.1114	3813	60.594	150.5	0.11	0.07
COMBUSTOR	0	9	2 21														
41.300	125.990	2757	631.0(784)	1.3036	26.607	2592											
41.300	16.110	1668	296.8(461)	1.3427	26.607	2046	1.999	4089	2.060	0.89280	25.416	0.1111	3689	56.736	145.1	0.22	0.04
COMBUSTOR	0	10	3 21														
41.310	130.644	2717	630.9(771)	1.3055	26.565	2576											
41.310	16.151	1626	297.3(460)	1.3451	26.565	2023	2.019	4086	2.053	0.89261	25.416	0.1112	3687	56.675	145.1	0.22	0.01
COMBUSTOR	0	11	4 21														
41.375	129.946	2710	630.6(769)	1.3058	26.559	2574											
41.375	16.417	1631	300.8(461)	1.3449	26.558	2026	2.006	4064	2.053	0.89396	25.416	0.1110	3677	56.465	144.7	0.22	0.00
COMBUSTOR	0	12	5 21														
41.500	127.779	2707	630.0(768)	1.3059	26.558	2573											
41.500	17.438	1661	309.7(480)	1.3435	26.557	2044	1.959	4003	2.054	0.89416	25.416	0.1110	3658	55.630	143.9	0.22	0.00
COMBUSTOR	0	13	6 21														
42.460	109.944	2689	624.4(763)	1.3065	26.557	2565											
42.460	17.810	1723	327.9(468)	1.3407	26.557	2080	1.852	3852	2.063	0.88538	25.416	0.1121	3554	52.997	139.8	0.22	0.00
COMBUSTOR	0	14	7 21														
44.095	101.704	2662	612.8(754)	1.3072	26.567	2552											
44.095	28.852	1963	396.2(539)	1.3311	26.567	2211	1.489	3292	2.066	0.85495	25.416	0.1161	3458	43.733	136.1	0.22	0.01
COMBUSTOR	0	15	8 21														
44.310	100.760	2649	611.1(750)	1.3077	26.559	2547											
44.310	29.793	1972	401.7(542)	1.3308	26.559	2217	1.461	3237	2.065	0.85346	25.416	0.1163	3444	42.937	135.5	0.22	0.00
COMBUSTOR	0	16	9 21														
44.800	97.454	2635	607.2(746)	1.3082	26.558	2541											
44.800	31.905	2012	414.0(554)	1.3294	26.557	2238	1.390	3109	2.066	0.85014	25.416	0.1167	3410	41.075	134.2	0.22	0.00
COMBUSTOR	0	17	10 21														
44.810	96.729	2650	607.1(750)	1.3075	26.573	2546											
44.810	31.874	2027	413.9(559)	1.3286	26.573	2245	1.385	3109	2.068	0.85015	25.416	0.1167	3409	41.078	134.1	0.22	0.01
COMBUSTOR	0	18	11 21														
46.260	91.422	2600	595.3(735)	1.3093	26.560	2524											
46.260	27.276	1938	391.2(532)	1.3321	26.560	2198	1.454	3196	2.066	0.80086	25.416	0.1239	3390	39.775	133.4	0.22	0.00

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	A	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 21														
47.310	93.113	2572	586.9(726)	1.3103	26.558	2512											
47.310	23.946	1846	364.2(504)	1.3356	26.558	2148	1.554	3338	2.061	0.74517	25.416	0.1332	3454	36.660	135.9	0.22	0.00
COMBUSTOR	0	20	13 3														
47.335	92.857	2578	586.7(728)	1.3100	26.565	2514											
47.335	24.099	1855	364.7(507)	1.3352	26.565	2153	1.548	3333	2.062	0.74434	25.416	0.1333	3456	36.550	136.0	0.22	0.01
COMBUSTOR	0	21	14 4														
48.110	83.834	2774	580.9(786)	1.3008	26.791	2988											
48.110	25.765	2095	369.0(576)	1.3238	26.791	2269	1.435	3256	2.088	0.69435	25.416	0.1429	3515	35.138	138.3	0.22	0.20
COMBUSTOR	0	22	15 3														
48.785	85.480	2715	576.4(768)	1.3033	26.742	2565											
48.785	20.109	1916	329.5(523)	1.3310	26.742	2177	1.615	3515	2.081	0.63854	25.416	0.1554	3577	34.879	140.7	0.22	0.16
COMBUSTOR	0	23	16 3														
49.315	86.891	2679	573.2(757)	1.3048	26.715	2551											
49.315	16.950	1802	303.7(490)	1.3357	26.715	2116	1.735	3672	2.076	0.59719	25.416	0.1662	3622	34.078	142.5	0.22	0.14
COMBUSTOR	0	24	17 21														
50.725	97.625	2527	565.8(712)	1.3114	26.581	2490											
50.725	10.312	1442	239.4(386)	1.3546	26.581	1911	2.114	4042	2.052	0.50897	25.416	0.1950	3708	31.969	145.9	0.22	0.02
COMBUSTOR	0	25	18 4														
52.825	90.268	2563	557.1(722)	1.3094	26.647	2502											
52.825	8.175	1409	210.0(376)	1.3558	26.647	1888	2.208	4168	2.061	0.41716	25.416	0.2379	3791	27.021	149.1	0.22	0.08
COMBUSTOR	0	26	19 3														
53.325	88.639	2572	555.4(725)	1.3090	26.662	2506											
53.325	7.737	1401	203.2(374)	1.3562	26.662	1882	2.230	4198	2.063	0.40011	25.416	0.2480	3807	26.101	149.8	0.22	0.09
COMBUSTOR	0	27	20 2														
54.075	88.089	2569	552.9(724)	1.3090	26.667	2504											
54.075	7.023	1366	192.0(364)	1.3581	26.666	1860	2.285	4250	2.063	0.37716	25.416	0.2631	3830	24.908	150.7	0.22	0.09
COMBUSTOR	0	28	21 3														
54.835	89.254	2551	550.5(718)	1.3097	26.656	2496											
54.835	6.300	1312	179.9(349)	1.3613	26.656	1825	2.359	4306	2.060	0.35666	25.416	0.2782	3851	23.868	151.5	0.22	0.09
COMBUSTOR	0	29	22 4														
55.760	81.632	2606	547.9(734)	1.3071	26.722	2517											
55.760	6.142	1368	176.2(364)	1.3575	26.722	1859	2.320	4313	2.072	0.33487	25.416	0.2963	3873	22.446	152.4	0.22	0.14
COMBUSTOR	0	30	23 5														
56.260	55.527	2843	546.7(806)	1.2962	26.980	2606											
56.260	6.037	1666	185.6(447)	1.3391	26.980	2028	2.096	4250	2.120	0.26978	25.416	0.3678	3928	17.821	154.6	0.22	0.36
COMBUSTOR	0	31	24 5														
56.315	80.165	2559	546.6(721)	1.3092	26.678	2499											
56.315	4.261	1221	148.2(323)	1.3665	26.678	1764	2.532	4465	2.068	0.26893	25.416	0.3690	3930	18.660	154.6	0.22	0.10
COMBUSTOR	0	32	25 3														
56.455	79.331	2566	546.2(723)	1.3089	26.686	2501											
56.455	4.249	1228	147.5(325)	1.3661	26.686	1768	2.527	4467	2.070	0.26700	25.416	0.3717	3933	18.533	154.7	0.22	0.11
COMBUSTOR	0	33	26 21														
56.535	33.858	3520	546.1(1011)	1.2619	27.755	2820											
56.535	6.010	2404	182.6(659)	1.3023	27.765	2368	1.801	4265	2.192	0.26999	25.416	0.3675	3935	17.894	154.8	0.22	1.00
COMBUSTOR	0	34	27 21														
56.815	33.989	3518	545.4(1011)	1.2616	27.755	2820											
56.815	5.962	2397	180.1(656)	1.3026	27.765	2364	1.808	4276	2.192	0.26909	25.416	0.3688	3941	17.880	155.0	0.22	1.00
COMBUSTOR	0	35	28 21														
57.041	33.853	3517	544.9(1010)	1.2616	27.755	2819											
57.041	5.782	2381	175.2(652)	1.3032	27.765	2357	1.825	4301	2.192	0.26868	25.416	0.3693	3945	17.960	155.2	0.22	1.00
COMBUSTOR	0	36	29 21														
57.765	32.887	3513	543.5(1009)	1.2618	27.755	2818											
57.765	5.205	2335	161.4(638)	1.3048	27.765	2336	1.872	4373	2.194	0.26442	25.416	0.3753	3954	17.968	155.6	0.22	1.00
COMBUSTOR	0	37	30 21														
58.785	32.227	3507	541.6(1007)	1.2619	27.756	2816											
58.785	4.837	2303	151.4(628)	1.3059	27.765	2321	1.904	4419	2.195	0.26274	25.416	0.3777	3959	18.044	155.8	0.22	1.00

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 21														
60.795	15.025	3497	539.0(1004)	1.2603	27.753	2810											
60.795	1.375	2043	72.9(590)	1.3155	27.765	2194	2.201	4830	2.248	0.27188	25.416	0.3650	3944	20.406	155.2	0.22	1.00
COMBUSTOR	0	39	32 21														
62.215	31.768	3495	537.5(1003)	1.2624	27.756	2811											
62.215	4.562	2270	141.4(618)	1.3071	27.765	2305	1.931	4452	2.194	0.27925	25.416	0.3553	3932	19.320	154.7	0.22	1.00
COMBUSTOR	0	40	33 21														
64.679	35.752	3486	534.1(1000)	1.2631	27.757	2808											
64.679	8.833	2566	232.8(709)	1.2967	27.765	2441	1.590	3882	2.185	0.26470	25.416	0.3749	3915	15.969	154.0	0.22	1.00
COMBUSTOR	0	41	34 21														
65.055	33.505	3484	533.4(999)	1.2630	27.756	2807											
65.055	9.973	2676	267.3(743)	1.2928	27.765	2489	1.466	3649	2.189	0.24608	25.416	0.4032	3912	13.954	153.9	0.22	1.00
COMBUSTOR REGEN		42	35 3														
65.055	33.505	3784	640.2(1097)	1.2491	27.743	2911											
65.055	11.469	3025	379.4(852)	1.2802	27.763	2633	1.372	3612	2.219	0.24608	25.416	0.4032	4038	13.813	158.9	0.22	1.00
NOZZLE AE		43	36 4														
87.291	33.505	3484	533.4(990)	1.2630	27.756	2807											
87.291	0.711	1413	=109.1(368)	1.3457	27.765	1846	3.072	5670	2.189	0.05123	25.416	1.9371	4832	4.514	190.1	0.22	1.00
NOZZLE PO		44	37 4														
87.291	33.505	3484	533.4(990)	1.2630	27.756	2807											
87.291	0.377	1198	=168.2(309)	1.3591	27.765	1708	3.470	5925	2.189	0.03349	25.416	2.9629	4967	3.084	195.4	0.22	1.00
NOZZLE AE REGEN		45	38 4														
87.291	33.505	3784	640.2(1097)	1.2491	27.743	2911											
87.291	0.775	1603	=55.5(422)	1.3349	27.765	1958	3.014	5900	2.219	0.05123	25.416	1.9371	5045	4.697	198.5	0.22	1.00
NOZZLE PO REGEN		46	39 4														
87.291	33.505	3784	640.2(1097)	1.2491	27.743	2911											
87.291	0.377	1334	=131.1(346)	1.3506	27.765	1796	3.459	6212	2.219	0.03153	25.416	3.1468	5211	3.044	205.0	0.22	1.00
FICTIVE COMBUSTR		66	59 0														
65.055	185.190	3487	533.4(1000)	1.2658	27.760	2812											
65.055	0.377	752	=285.7(191)	1.3847	27.765	1366	4.687	6402	2.067	0.05761	25.416	1.7224	5224	5.782	205.5	0.22	1.00
FICTIVE NOZZLE		67	60 0														
87.291	19.491	3449	521.8(988)	1.2633	27.756	2794											
87.291	0.938	1718	=22.7(454)	1.3292	27.765	2022	2.582	5220	2.225	0.05123	25.416	1.9371	4589	4.156	180.6	0.22	1.00

READING = 0071 BLOCK = 71 TIME = 171.338 MACH 6.0 PT = 743.249 TT = 2911.4

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/P80	P-IB/PT0	P-OB/P80	P-OB/PT0
6.981E-01	1.040E 00	0.000	-4.426E-01	0.000	0.000	0.000	2.470E-02	2.760E 00	1.399E-03	0.000	0.000
1.836E 01	1.040E 00	0.000	-3.464E 01	0.000	0.000	0.000	1.634E 02	2.760E 00	1.399E-03	0.000	0.000
3.070E 01	2.870E 00	0.000	-1.931E 02	0.000	0.000	0.000	5.053E 02	7.616E 00	3.861E-03	0.000	0.000
3.508E 01	3.847E 00	0.000	-4.108E 02	0.000	0.000	0.000	6.804E 02	1.021E 01	5.177E-03	0.000	0.000
3.519E 01	4.167E 00	5.568E 00	-4.753E 02	0.000	0.000	0.000	6.858E 02	1.106E 01	5.607E-03	1.477E 01	7.491E-03
3.520E 01	4.184E 00	5.539E 00	-4.754E 02	0.000	0.000	0.000	6.857E 02	1.110E 01	5.630E-03	1.470E 01	7.453E-03
3.555E 01	5.180E 00	3.858E 00	-4.882E 02	0.000	0.000	0.000	7.209E 02	1.375E 01	6.969E-03	1.024E 01	5.190E-03
3.586E 01	5.007E 00	2.350E 00	-5.092E 02	-1.223E 02	-1.223E 02	0.000	7.529E 02	1.329E 01	6.737E-03	6.236E 00	3.162E-03
3.606E 01	4.900E 00	3.475E 00	-5.226E 02	-1.237E 02	-1.237E 02	0.000	7.729E 02	1.300E 01	6.593E-03	9.220E 00	4.675E-03
3.648E 01	4.196E 00	5.895E 00	-5.414E 02	-1.267E 02	-1.267E 02	0.000	8.164E 02	1.113E 01	5.644E-03	1.564E 01	7.931E-03
3.701E 01	5.250E 00	8.948E 00	-5.638E 02	-1.512E 02	-1.307E 02	-2.051E 01	8.726E 02	1.393E 01	7.064E-03	2.374E 01	1.204E-02
3.732E 01	4.921E 00	1.076E 01	-5.759E 02	-1.606E 02	-1.332E 02	-2.738E 01	9.063E 02	1.306E 01	6.621E-03	2.856E 01	1.448E-02
3.803E 01	4.185E 00	1.445E 01	-5.899E 02	-1.816E 02	-1.391E 02	-4.242E 01	9.834E 02	1.110E 01	5.631E-03	3.835E 01	1.945E-02
3.834E 01	7.814E 00	1.610E 01	-5.941E 02	-1.917E 02	-1.426E 02	-4.908E 01	1.018E 03	2.073E 01	1.051E-02	4.272E 01	2.166E-02
3.875E 01	1.248E 01	1.759E 01	-6.139E 02	-2.068E 02	-1.492E 02	-5.761E 01	1.064E 03	3.312E 01	1.680E-02	4.667E 01	2.366E-02
3.881E 01	1.323E 01	1.782E 01	-6.175E 02	-2.095E 02	-1.505E 02	-5.897E 01	1.072E 03	3.511E 01	1.780E-02	4.730E 01	2.398E-02
3.901E 01	1.548E 01	1.762E 01	-6.278E 02	-2.179E 02	-1.548E 02	-6.306E 01	1.094E 03	4.108E 01	2.083E-02	4.677E 01	2.371E-02
3.932E 01	1.840E 01	1.730E 01	-6.480E 02	-2.330E 02	-1.634E 02	-6.962E 01	1.130E 03	4.882E 01	2.476E-02	4.591E 01	2.328E-02
3.950E 01	2.002E 01	1.298E 01	-6.608E 02	-2.422E 02	-1.689E 02	-7.325E 01	1.150E 03	5.314E 01	2.694E-02	3.445E 01	1.747E-02
3.981E 01	1.786E 01	5.225E 00	-6.884E 02	-2.603E 02	-1.806E 02	-7.966E 01	1.187E 03	4.740E 01	2.404E-02	1.386E 01	7.030E-03
4.000E 01	1.659E 01	4.996E 00	-7.054E 02	-2.719E 02	-1.885E 02	-8.336E 01	1.209E 03	4.403E 01	2.233E-02	1.326E 01	6.722E-03
4.040E 01	2.036E 01	4.503E 00	-7.428E 02	-2.988E 02	-2.070E 02	-9.181E 01	1.256E 03	5.402E 01	2.739E-02	1.195E 01	6.058E-03
4.041E 01	2.045E 01	4.491E 00	-7.437E 02	-2.995E 02	-2.075E 02	-9.204E 01	1.257E 03	5.427E 01	2.752E-02	1.192E 01	6.042E-03
4.130E 01	2.883E 01	3.393E 00	-8.506E 02	-3.834E 02	-2.533E 02	-1.301E 02	1.462E 03	7.650E 01	3.879E-02	9.002E 00	4.564E-03
4.131E 01	2.892E 01	3.380E 00	-8.519E 02	-3.846E 02	-2.538E 02	-1.307E 02	1.363E 03	7.675E 01	3.891E-02	8.969E 00	4.548E-03
4.137E 01	2.953E 01	3.300E 00	-8.607E 02	-3.924E 02	-2.575E 02	-1.349E 02	1.371E 03	7.837E 01	3.974E-02	8.757E 00	4.440E-03
4.150E 01	3.071E 01	4.165E 00	-8.779E 02	-4.080E 02	-2.649E 02	-1.434E 02	1.386E 03	8.150E 01	4.132E-02	1.105E 01	5.603E-03
4.246E 01	2.482E 01	1.079E 01	-9.659E 02	-5.507E 02	-3.246E 02	-2.261E 02	1.501E 03	6.587E 01	3.340E-02	2.864E 01	1.452E-02
4.409E 01	3.562E 01	2.208E 01	-1.036E 03	-8.470E 02	-4.520E 02	-3.950E 02	1.699E 03	9.452E 01	4.792E-02	5.860E 01	2.971E-02
4.431E 01	3.704E 01	2.253E 01	-1.047E 03	-8.889E 02	-4.712E 02	-4.178E 02	1.725E 03	9.829E 01	4.984E-02	5.978E 01	3.031E-02
4.480E 01	4.027E 01	2.354F 01	-1.074E 03	-9.881E 02	-5.170E 02	-4.711F 02	1.785E 03	1.069E 02	5.419E-02	6.245E 01	3.167E-02
4.481E 01	4.019E 01	2.356E 01	-1.075E 03	-9.902E 02	-5.179E 02	-4.722E 02	1.786E 03	1.067E 02	5.408E-02	6.250E 01	3.169E-02
4.626E 01	2.801E 01	2.654E 01	-1.074E 03	-1.290E 03	-6.517E 02	-6.385F 02	1.964E 03	7.433E 01	3.769E-02	7.042E 01	3.571E-02
4.731E 01	1.919E 01	2.870E 01	-9.966E 02	-1.504E 03	-7.410E 02	-7.629F 02	2.094E 03	5.093E 01	2.582E-02	7.615F 01	3.861E-02
4.733E 01	1.945E 01	2.875E 01	-9.946E 02	-1.509E 03	-7.430E 02	-7.658F 02	2.097E 03	5.161E 01	2.617E-02	7.629E 01	3.868E-02
4.811E 01	2.740E 01	2.413E 01	-9.252E 02	-1.656E 03	-8.049E 02	-8.513E 02	2.194E 03	7.271E 01	3.687E-02	6.403E 01	3.247E-02
4.878E 01	2.011E 01	2.011F 01	-8.557E 02	-1.771E 03	-8.562E 02	-9.150E 02	2.278E 03	5.336E 01	2.706E-02	5.336E 01	2.706E-02
4.931E 01	1.695E 01	1.695E 01	-8.048E 02	-1.853E 03	-8.947E 02	-9.579F 02	2.345E 03	4.498E 01	2.281E-02	4.498E 01	2.281E-02
5.072E 01	1.031E 01	1.031E 01	-7.038E 02	-2.039E 03	-9.899E 02	-1.049F 03	2.522E 03	2.736E 01	1.387E-02	2.736E 01	1.387E-02
5.282E 01	8.175E 00	8.175E 00	-6.020E 02	-2.260E 03	-1.112E 03	-1.148E 03	2.789E 03	2.169E 01	1.100E-02	2.169E 01	1.100E-02
5.332E 01	7.737E 00	7.737E 00	-5.813E 02	-2.305E 03	-1.138E 03	-1.167E 03	2.852E 03	2.053E 01	1.041E-02	2.053E 01	1.041E-02
5.407E 01	7.023E 00	7.023E 00	-5.527E 02	-2.368E 03	-1.174E 03	-1.195E 03	2.948E 03	1.864E 01	9.450E-03	1.864E 01	9.480E-03
5.483E 01	6.300E 00	6.300F 00	-5.269E 02	-2.428E 03	-1.207E 03	-1.221E 03	3.046E 03	1.672E 01	8.476E-03	1.672E 01	8.476E-03
5.576E 01	6.142E 00	6.142E 00	-4.981E 02	-2.494E 03	-1.243E 03	-1.250E 03	3.164E 03	1.630E 01	8.264E-03	1.630E 01	8.264E-03
5.626E 01	6.057E 00	6.057F 00	-4.810E 02	-2.526E 03	-1.260E 03	-1.265E 03	3.209E 03	1.607E 01	8.149E-03	1.607E 01	8.149E-03
5.631E 01	2.475E 00	6.048E 00	-4.393E 02	-2.529E 03	-1.262E 03	-1.267E 03	3.216E 03	6.567E 00	3.330E-03	1.605E 01	8.137E-03
5.645E 01	2.475E 00	6.024E 00	-4.353E 02	-2.537E 03	-1.266E 03	-1.271E 03	3.238E 03	6.567E 00	3.330E-03	1.598E 01	8.109E-03
5.653E 01	6.010E 00	6.010E 00	-4.329E 02	-2.542E 03	-1.269E 03	-1.293F 03	3.245E 03	1.595E 01	8.086E-03	1.595E 01	8.086E-03
5.681E 01	5.962E 00	5.962E 00	-4.251E 02	-2.556E 03	-1.277E 03	-1.281E 03	3.280E 03	1.582E 01	8.022E-03	1.582E 01	8.022E-03
5.704E 01	5.782E 00	5.782E 00	-4.194E 02	-2.570E 03	-1.283E 03	-1.287E 03	3.309E 03	1.534E 01	7.780E-03	1.534E 01	7.780E-03
5.776E 01	5.209E 00	5.209F 00	-4.045E 02	-2.608E 03	-1.301E 03	-1.306E 03	3.402E 03	1.381E 01	7.003E-03	1.381E 01	7.003E-03
5.878E 01	4.837E 00	4.837E 00	-3.929E 02	-2.654E 03	-1.322E 03	-1.331E 03	3.532E 03	1.284E 01	6.509E-03	1.284E 01	6.509E-03
6.079E 01	1.379E 00	1.375E 00	-3.921E 02	-2.720E 03	-1.351E 03	-1.369F 03	3.790E 03	3.649E 00	1.850E-03	3.649E 00	1.850E-03
6.221E 01	4.562E 00	4.562E 00	-3.921E 02	-2.759E 03	-1.366E 03	-1.393F 03	3.972E 03	1.211E 01	6.139E-03	1.211E 01	6.139E-03
6.468F 01	8.833E 00	8.833F 00	-3.921E 02	-2.848E 03	-1.397E 03	-1.450E 03	4.289E 03	2.344E 01	1.188E-02	2.344E 01	1.188E-02
6.505E 01	1.046E 01	9.484F 00	-3.921E 02	-2.863E 03	-1.402E 03	-1.461F 03	4.337E 03	2.776E 01	1.408E-02	2.517E 01	1.276E-02

READING = 0071 BLOCK = 71 TIME = 171.338 MACH 6.0 PT = 743.249 TT = 2911.4 PAGE 5

YABB	P=IB	P=OB	PDA	QOX	Q=IB	Q=OB	CAWALL	P=IB/P80	P=IB/PTO	P=OB/P80	P=OB/PTO
6.509F 01	1.046E 01	9.553F 00	-3.921E 02	-2.865F 03	-1.403E 03	-1.462F 03	4.342E 03	2.776F 01	1.408E-02	2.535E 01	1.285E-02
6.529E 01	9.906E 00	9.900F 00	-3.921E 02	-2.873E 03	-1.405E 03	-1.448E 03	4.368E 03	2.629E 01	1.333E-02	2.627E 01	1.332E-02
6.695E 01	5.290E 00	4.630E 00	-3.099E 02	-2.932E 03	-1.425E 03	-1.508E 03	4.583E 03	1.404E 01	7.117E-03	1.229E 01	6.229E-03
6.762E 01	4.071E 00	4.410E 00	-2.167E 02	-2.953E 03	-1.431E 03	-1.522E 03	4.665E 03	1.080E 01	5.477E-03	1.170E 01	5.933E-03
6.839E 01	2.670E 00	4.059E 00	-1.126E 02	-2.976E 03	-1.437E 03	-1.539E 03	4.760E 03	7.085E 00	3.592E-03	1.077E 01	5.461E-03
6.911E 01	2.110E 00	3.730E 00	-3.316E 01	-3.000E 03	-1.442E 03	-1.558E 03	4.848E 03	5.598E 00	2.838E-03	9.898E 00	5.019E-03
6.972E 01	1.635E 00	2.672E 00	2.059E 01	-3.020E 03	-1.445E 03	-1.574E 03	4.922E 03	4.338E 00	2.200E-03	7.091E 00	3.595E-03
7.067E 01	1.428E 00	1.025E 00	7.426E 01	-3.049E 03	-1.450E 03	-1.599E 03	5.036E 03	3.790E 00	1.922E-03	2.720E 00	1.379E-03
7.110E 01	1.335E 00	1.128E 00	9.214E 01	-3.061E 03	-1.451E 03	-1.610E 03	5.088E 03	3.542E 00	1.796E-03	2.993E 00	1.518E-03
7.263E 01	1.267E 00	1.495E 00	1.550E 02	-3.095E 03	-1.456E 03	-1.639E 03	5.273E 03	3.361E 00	1.704E-03	3.967E 00	2.011E-03
7.278F 01	1.260E 00	1.303E 00	1.608E 02	-3.098E 03	-1.456E 03	-1.641E 03	5.290E 03	3.343E 00	1.695E-03	3.458E 00	1.754E-03
7.353E 01	1.112E 00	3.450E-01	1.933E 02	-3.113E 03	-1.458E 03	-1.659E 03	5.374E 03	2.951E 00	1.496E-03	9.155E-01	4.642E-04
7.354E 01	1.111E 00	3.399F-01	1.940E 02	-3.113E 03	-1.458E 03	-1.659E 03	5.375E 03	2.949E 00	1.495E-03	9.019E-01	4.573E-04
7.486E 01	8.500E-01	0.000	2.148E 02	-3.144E 03	-1.461E 03	-1.684E 03	5.427E 03	2.255F 00	1.144E-03	0.000	0.000
7.771E 01	8.300E-01	0.000	2.484E 02	-3.148E 03	-1.465E 03	-1.684F 03	5.525E 03	2.202F 00	1.117E-03	0.000	0.000
8.161E 01	8.650E-01	0.000	2.846E 02	-3.152E 03	-1.468E 03	-1.684E 03	5.630E 03	2.295E 00	1.164E-03	0.000	0.000
8.442E 01	6.050E-01	0.000	3.009E 02	-3.154E 03	-1.470E 03	-1.684E 03	5.684E 03	1.605E 00	8.140E-04	0.000	0.000
8.728E 01	6.150E-01	0.000	3.156E 02	-3.157E 03	-1.473E 03	-1.684E 03	5.707E 03	1.632E 00	8.274E-04	0.000	0.000
8.729F 01	6.150E-01	0.000	3.156E 02	-3.157F 03	-1.473E 03	-1.684F 03	5.707E 03	1.632E 00	8.275E-04	0.000	0.000

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.283E 02	1.283E 02	2.424E-03	4.598E-02
4.041E 01	1.771E-01	1.285E 02	2.655E-03	3.356E-02
4.130E 01	1.681E 01	1.453E 02	2.708E-03	3.952E-02
4.131E 01	1.782E-01	1.455E 02	2.587E-03	4.196E-02
4.137E 01	1.127E 00	1.466E 02	2.561E-03	4.271E-02
4.150E 01	2.150E 00	1.488E 02	2.573E-03	4.451E-02
4.246E 01	1.625E 01	1.650E 02	2.638E-03	4.340E-02
4.409E 01	2.563E 01	1.906E 02	2.717E-03	5.557E-02
4.431E 01	3.085E 00	1.937E 02	2.733E-03	5.606E-02
4.480E 01	6.888E 00	2.006E 02	2.751E-03	5.729E-02
4.481E 01	1.340E-01	2.007E 02	2.751E-03	5.729E-02
4.626E 01	1.978E 01	2.205E 02	2.740E-03	5.150E-02
4.731E 01	1.380E 01	2.343E 02	2.666E-03	4.812E-02
4.733E 01	3.220E-01	2.347E 02	2.665E-03	4.852E-02
4.811E 01	9.457E 00	2.441E 02	2.652E-03	4.967E-02
4.878E 01	7.935E 00	2.520E 02	2.716E-03	4.113E-02
4.931E 01	6.136E 00	2.582E 02	2.638E-03	3.733E-02
5.072E 01	1.508E 01	2.733E 02	2.505E-03	2.683E-02
5.282E 01	1.884E 01	2.921E 02	2.292E-03	2.304E-02
5.332E 01	3.913E 00	2.960E 02	2.332E-03	2.171E-02
5.407E 01	5.676E 00	3.017E 02	2.313E-03	2.008E-02
5.483E 01	5.461E 00	3.071E 02	2.286E-03	1.847E-02
5.576E 01	6.250E 00	3.134E 02	2.253E-03	1.804E-02
5.626E 01	2.056E 00	3.155E 02	2.288E-03	1.666E-02
5.631E 01	3.054E-01	3.158E 02	2.466E-03	1.232E-02
5.645E 01	7.676E-01	3.165E 02	2.180E-03	1.320E-02
5.653E 01	4.772E-01	3.170E 02	2.940E-03	1.367E-02
5.681E 01	1.873E 00	3.189E 02	2.931E-03	1.359E-02
5.704E 01	1.513E 00	3.204E 02	2.926E-03	1.330E-02
5.776E 01	4.862E 00	3.253E 02	2.918E-03	1.234E-02
5.878E 01	6.863E 00	3.321E 02	2.913E-03	1.170E-02
6.079E 01	1.523E 01	3.473E 02	3.232E-03	4.491E-03
6.221E 01	1.112E 01	3.585E 02	2.914E-03	1.125E-02
6.468E 01	1.631E 01	3.748E 02	2.935E-03	1.723E-02
6.505E 01	2.140E 00	3.769E 02	2.995E-03	1.801E-02
6.509E 01	2.158E-01	3.771E 02	3.049E-03	1.838E-02
6.529E 01	1.084E 00	3.782E 02	3.046E-03	1.828E-02
6.695E 01	8.253E 00	3.865E 02	2.901E-03	1.205E-02
6.762E 01	2.719E 00	3.892E 02	2.870E-03	1.085E-02
6.839E 01	2.886E 00	3.921E 02	2.824E-03	9.242E-03
6.911E 01	2.440E 00	3.945E 02	2.796E-03	8.357E-03
6.972E 01	1.828E 00	3.963E 02	2.742E-03	6.714E-03
7.067E 01	2.223E 00	3.986E 02	2.642E-03	4.413E-03
7.110E 01	8.474E-01	3.994E 02	2.642E-03	4.424E-03
7.263E 01	3.111E 00	4.025E 02	2.659E-03	4.815E-03
7.278E 01	2.944E-01	4.028E 02	2.645E-03	4.551E-03
7.353E 01	1.193E 00	4.040E 02	2.542E-03	2.946E-03
7.354E 01	1.883E-03	4.040E 02	2.541E-03	2.936E-03
7.486E 01	6.340E-01	4.046E 02	2.563E-03	3.310E-03
7.771E 01	1.248E 00	4.059E 02	2.546E-03	3.233E-03
8.161E 01	1.334E 00	4.072E 02	2.537E-03	3.315E-03
8.442E 01	6.249E-01	4.079E 02	2.462E-03	2.498E-03
8.728E 01	2.299E-01	4.081E 02	2.453E-03	2.518E-03
8.729E 01	0.000	4.081E 02	2.453E-03	2.518E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	=96.	(LBF)
MEASURED THRUST	=333.	(LBF)
CALCULATED SPECIFIC IMPULSE	=570.	(LBF=SEC/LBM)
MEASURED SPECIFIC IMPULSE	=1984.	(LBF=SEC/LBM)
CALCULATED THRUST COEFFICIENT	=.0390	
MEASURED THRUST COEFFICIENT	=.1357	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	4792.	(LBF)
NET THRUST	107.	(LBF)
SPECIFIC IMPULSE	637.	(LBF=SEC/LBM)
THRUST COEFFICIENT	0.0436	

MOMENTUM AND FORCES

INLET FRICTION DRAG	128.3	(LBF)
INLET MOMENTUM CHANGE	=871.1	(LBF)
COMBUSTOR FRICTION DRAG	248.6	(LBF)
COMBUSTOR STRUT DRAG	3.24	(LBF)
COMBUSTOR MOMENTUM CHANGE	99.	(LBF)
NOZZLE FRICTION DRAG	31.17	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	677.	(LBF)
NOZZLE PRESSURE INTEGRAL	708.	(LBF)
EXTERNAL FRICTION DRAG	65.67	(LBF)
EXTERNAL PRESSURE INTEGRAL	=1001.	(LBF)
TOTAL EXTERNAL DRAG	=1066.	(LBF)
TOTAL STRUT DRAG	3.24	(LBF)
CAVITY FORCE	=1106.	(LBF)
CALCULATED LOAD CELL FORCE	=2269.	(LBF)
MEASURED LOAD CELL FORCE	=2503.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE 0.0. 0.0.		

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3148	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.199	(IN)
NOZZLE SHROUD TRAILING EDGE	73.539	(IN)
NOZZLE PLUG TRAILING EDGE	87.291	(IN)
STRUT LEADING EDGE	56.455	(IN)
STRUT TRAILING EDGE	65.055	(IN)
COMBUSTOR EXIT	65.055	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.9318	
ADDITIVE DRAG COEFFICIENT	0.0053	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1428	
DELTA PT2	0.1200	(PSI)
TOTAL PRESSURE RECOVERY = SUPERSONIC	0.2492	
TOTAL PRESSURE RECOVERY = SUBSONIC	0.1451	
INLET PROCESS EFFICIENCY = SUPERSONIC	0.8642	
INLET PROCESS EFFICIENCY = SUBSONIC	0.8957	
KINETIC ENERGY EFFICIENCY = SUPERSONIC	0.9190	
KINETIC ENERGY EFFICIENCY = SUBSONIC	0.8854	
ENTHALPY AT P0 = SUPERSONIC	7.43	(BTU/LBM)
ENTHALPY AT P0 = SUBSONIC	30.23	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0067	
EQUIVALENCE RATIO	0.215	
COMBUSTOR EFFICIENCY	1.000	
TOTAL PRESSURE RATIO	0.1809	
COMBUSTOR EFFECTIVENESS	0.8178	
INJECTOR DISCHARGE COEFFICIENTS	0.7265,	0.7011.

NOZZLE

VACUUM STREAM THRUST COEFFICIENT = CS	0.9498	
NOZZLE COEFFICIENT = CT	0.8863	
PROCESS EFFICIENCY	0.8351	
KINETIC ENERGY EFFICIENCY	0.8877	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.300	B
1C	44.300	
2A	48.775	
2C	46.250	
3A	54.069	
3B	56.250	
4	44.800	

Reading 71

$t = 174.94$ sec.

READING = 0071 BLOCK = 75 TIME = 174.938 MACH 6.0 PT = 743.749 TT = 2940.3
RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	743.749	2940	652.3	(778)	1.2951	28.898	2560											
0.000	0.381	394	-34.3	(95)	1.3987	28.897	974	6.018	5861	1.822	0.10585	25.214	0.9300	4684	9.642	185.8		
SPIKE TIP NS		2	0	5														
0.600	18.262	2940	652.3	(778)	1.2951	28.897	2560											
0.600	16.587	2876	633.0	(759)	1.2971	28.897	2534	0.387	982	2.077	0.10585	25.214	0.9300	4720	1.615	187.2		
WIND TUNNEL		3	0	0														
0.000	743.749	2940	652.3	(778)	1.2951	28.898	2560											
0.000	0.386	396	-34.0	(95)	1.3987	28.897	976	6.004	5860	1.822	0.10685	25.452	0.9300	4728	9.731	185.7		
SPIKE TIP NS		4	0	0														
0.600	18.262	2940	652.3	(778)	1.2951	28.897	2560											
0.600	16.551	2875	632.6	(759)	1.2972	28.897	2533	0.392	993	2.077	0.10685	25.452	0.9300	4728	1.648	185.7		
INLET THROAT		5	0	4														
40.400	192.342	2877	633.1	(759)	1.2972	28.897	2534											
40.400	18.155	1624	275.7	(405)	1.3419	28.897	1936	2.184	4229	1.908	0.88403	25.214	0.1114	3832	58.100	152.0		
INLET UPNRSK		6	0	3														
40.400	192.342	2877	633.1	(759)	1.2972	28.897	2534											
40.400	15.468	1559	258.2	(387)	1.3453	28.897	1900	2.280	4331	1.908	0.80366	25.214	0.1225	3880	54.097	153.9		
INLET DNNRSK		7	0	4														
40.400	108.536	2877	633.1	(759)	1.2972	28.897	2534											
40.400	91.102	2763	599.2	(726)	1.3008	28.897	2487	0.524	1304	1.948	0.80366	25.214	0.1225	3880	16.280	153.9		
COMBUSTOR	0	8	1	21														
40.410	164.664	2829	631.6	(777)	1.2998	27.667	2571											
40.410	12.794	1513	243.4	(391)	1.3490	27.667	1915	2.301	4407	1.986	0.88700	25.301	0.1114	3831	60.752	151.4	0.11	0.07
COMBUSTOR	0	9	2	21														
41.300	130.310	2760	632.6	(785)	1.3036	26.581	2594											
41.300	16.922	1676	299.8	(454)	1.3423	26.581	2051	1.989	4081	2.059	0.89165	25.383	0.1111	3701	56.552	145.8	0.22	0.04
COMBUSTOR	0	10	3	21														
41.310	134.920	2720	632.6	(773)	1.3054	26.540	2579											
41.310	16.968	1635	300.4	(443)	1.3447	26.540	2030	2.009	4077	2.053	0.89145	25.383	0.1112	3700	56.487	145.8	0.22	0.01
COMBUSTOR	0	11	4	21														
41.375	134.033	2713	632.3	(771)	1.3057	26.534	2576											
41.375	17.270	1641	303.8	(444)	1.3445	26.534	2033	1.994	4054	2.052	0.89280	25.383	0.1110	3689	56.249	145.3	0.22	0.00
COMBUSTOR	0	12	5	21														
41.500	131.866	2710	631.6	(770)	1.3058	26.533	2575											
41.500	18.787	1682	316.0	(456)	1.3426	26.533	2057	1.932	3974	2.053	0.89301	25.383	0.1110	3669	55.151	144.6	0.22	0.00
COMBUSTOR	0	13	6	21														
42.460	118.330	2692	625.9	(764)	1.3064	26.533	2567											
42.460	21.791	1782	345.6	(486)	1.3382	26.532	2114	1.772	3744	2.059	0.88424	25.383	0.1121	3580	51.455	141.0	0.22	0.00
COMBUSTOR	0	14	7	4														
44.095	100.979	2995	613.6	(855)	1.2920	26.897	2674											
44.095	36.804	2369	414.3	(659)	1.3128	26.897	2398	1.317	3158	2.096	0.85385	25.383	0.1161	3585	41.900	141.2	0.22	0.31
COMBUSTOR	0	15	8	3														
44.310	100.900	3004	611.8	(858)	1.2915	26.913	2677											
44.310	36.835	2378	412.3	(662)	1.3123	26.913	2401	1.316	3160	2.097	0.85236	25.383	0.1163	3590	41.853	141.4	0.22	0.32
COMBUSTOR	0	16	9	3														
44.800	100.527	3017	607.6	(862)	1.2907	26.941	2681											
44.800	36.905	2393	408.4	(666)	1.3115	26.942	2406	1.312	3157	2.097	0.84904	25.383	0.1167	3594	41.660	141.6	0.22	0.35
COMBUSTOR	0	17	10	2														
44.810	100.555	3017	607.5	(861)	1.2907	26.941	2681											
44.810	36.868	2391	408.1	(665)	1.3115	26.941	2406	1.313	3159	2.097	0.84905	25.383	0.1167	3594	41.679	141.6	0.22	0.34
COMBUSTOR	0	18	11	5														
46.250	98.767	2794	595.9	(835)	1.3014	25.382	2669											
46.250	31.408	2127	376.3	(618)	1.3241	25.382	2348	1.412	3316	2.169	0.80411	25.503	0.1238	3624	41.422	142.1	0.37	0.16

READING = 0071 BLOCK = 75 TIME = 174.938 MACH 6.0 PT = 743.749 TT = 2940.3

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	2														
46.260	98.740	2794	595.8	(835)	1.3014	25.382	2669											
46.260	31.370	2126	376.1	(617)	1.3241	25.382	2348	1.412	3316	2.170	0.80362	25.503	0.1239	3624	41.411	142.1	0.37	0.16
COMBUSTOR	0	20	13	3														
47.310	96.244	2812	586.5	(840)	1.3002	25.428	2674											
47.310	27.388	2084	347.5	(604)	1.3251	25.428	2324	1.488	3458	2.172	0.74774	25.503	0.1332	3675	40.184	144.1	0.37	0.19
COMBUSTOR	0	21	14	2														
47.335	96.251	2811	586.2	(840)	1.3003	25.428	2673											
47.335	27.295	2081	346.8	(603)	1.3252	25.428	2322	1.491	3461	2.172	0.74690	25.503	0.1333	3676	40.178	144.1	0.37	0.19
COMBUSTOR	0	22	15	3														
48.110	92.592	2859	579.7	(855)	1.2978	25.496	2690											
48.110	24.915	2094	328.0	(606)	1.3240	25.496	2325	1.527	3549	2.179	0.69674	25.503	0.1429	3725	38.428	146.1	0.37	0.22
COMBUSTOR	0	23	16	5														
48.775	88.212	2727	576.8	(853)	1.3046	24.146	2707											
48.775	22.191	1955	312.8	(591)	1.3316	24.146	2315	1.570	3634	2.258	0.64462	25.625	0.1552	3776	36.402	147.4	0.53	0.15
COMBUSTOR	0	24	17	2														
48.785	88.137	2729	576.7	(854)	1.3045	24.148	2707											
48.785	22.161	1955	312.6	(592)	1.3316	24.148	2315	1.570	3636	2.258	0.64379	25.625	0.1554	3777	36.368	147.4	0.53	0.15
COMBUSTOR	0	25	18	4														
49.315	84.635	2789	573.1	(874)	1.3016	24.215	2730											
49.315	20.575	1986	298.1	(601)	1.3296	24.215	2329	1.593	3709	2.267	0.60209	25.625	0.1662	3830	34.707	149.5	0.53	0.18
COMBUSTOR	0	26	19	4														
50.725	81.238	2830	564.9	(887)	1.2994	24.278	2744											
50.725	15.662	1906	249.0	(574)	1.3320	24.278	2280	1.743	3975	2.273	0.51315	25.625	0.1950	3948	31.702	154.1	0.53	0.21
COMBUSTOR	0	27	20	5														
52.825	66.079	3137	554.8	(989)	1.2846	24.610	2853											
52.825	14.437	2206	229.3	(668)	1.3167	24.611	2423	1.666	4036	2.314	0.42059	25.625	0.2379	4094	26.379	159.8	0.53	0.35
COMBUSTOR	0	28	21	4														
53.325	70.005	3034	552.5	(954)	1.2895	24.512	2817											
53.325	12.127	2008	198.1	(604)	1.3252	24.513	2323	1.812	4211	2.301	0.40340	25.625	0.2480	4124	26.398	160.9	0.53	0.31
COMBUSTOR	0	29	22	3														
54.075	70.538	3012	549.0	(947)	1.2904	24.500	2808											
54.075	10.704	1928	176.2	(578)	1.3285	24.500	2280	1.895	4319	2.298	0.38025	25.625	0.2631	4162	25.525	162.4	0.53	0.30
COMBUSTOR	0	30	23	4														
54.835	72.893	2961	545.8	(930)	1.2927	24.458	2789											
54.835	9.262	1809	152.4	(540)	1.3339	24.458	2215	2.003	4437	2.291	0.35959	25.625	0.2782	4194	24.795	163.7	0.53	0.28
COMBUSTOR	0	31	24	4														
55.760	67.552	3040	542.4	(956)	1.2889	24.546	2817											
55.760	9.017	1888	146.6	(564)	1.3296	24.547	2255	1.974	4450	2.303	0.33762	25.625	0.2963	4229	23.351	165.0	0.53	0.32
COMBUSTOR	0	32	25	5														
56.260	48.895	3392	540.7	(1074)	1.2711	24.914	2933											
56.260	8.885	2310	156.4	(699)	1.3093	24.919	2456	1.785	4385	2.353	0.27200	25.625	0.3678	4329	18.536	169.0	0.53	0.47
COMBUSTOR	0	33	26	5														
56.315	59.499	3114	540.6	(981)	1.2852	24.626	2843											
56.315	6.910	1876	114.2	(559)	1.3292	24.628	2244	2.059	4619	2.319	0.27114	25.625	0.3690	4332	19.462	169.0	0.53	0.35
COMBUSTOR	0	34	27	3														
56.455	58.979	3125	540.1	(984)	1.2847	24.638	2846											
56.455	6.891	1886	113.4	(562)	1.3286	24.640	2249	2.055	4621	2.320	0.26919	25.625	0.3717	4337	19.332	169.2	0.53	0.36
COMBUSTOR	0	35	28	7														
56.535	49.464	3395	539.9	(1075)	1.2709	24.919	2934											
56.535	8.812	2301	151.7	(696)	1.3095	24.924	2452	1.798	4407	2.352	0.27220	25.625	0.3675	4340	18.644	169.4	0.53	0.47
COMBUSTOR	0	36	29	3														
56.815	49.705	3402	539.0	(1078)	1.2706	24.929	2936											
56.815	8.737	2300	147.7	(695)	1.3095	24.934	2450	1.806	4425	2.352	0.27130	25.625	0.3688	4350	18.658	169.7	0.53	0.48
COMBUSTOR	0	37	30	3														
57.041	49.664	3416	538.4	(1082)	1.2698	24.946	2940											
57.041	8.757	2313	146.1	(699)	1.3088	24.952	2456	1.804	4431	2.353	0.27089	25.625	0.3693	4357	18.652	170.0	0.53	0.49

READING = 0071 BLOCK = 75 TIME = 174.938 MACH 6.0 PT = 743.749 TT = 2940.3

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 4														
57.765	48.529	3472	536.3(1101)	1.2667	25.012	2957											
57.765	8.820	2374	143.7(719)	1.3058	25.019	2482	1.786	4432	2.358	0.26659	25.625	0.3753	4378	18.362	170.8	0.53	0.51
COMBUSTOR	0	39	32 6														
58.785	77.366	2938	533.8(921)	1.2934	24.468	2779											
58.785	5.250	1529	59.2(450)	1.3470	24.469	2046	2.382	4873	2.283	0.26489	25.625	0.3777	4389	20.060	171.3	0.53	0.29
COMBUSTOR	0	40	33 4														
60.795	68.969	3057	529.8(961)	1.2876	24.598	2820											
60.795	6.225	1724	75.2(510)	1.3360	24.599	2158	2.211	4770	2.301	0.27411	25.625	0.3650	4381	20.319	171.0	0.53	0.34
COMBUSTOR	0	41	34 6														
62.215	43.587	3835	527.0(1224)	1.2448	25.438	3054											
62.215	12.356	2951	194.2(910)	1.2801	25.462	2716	1.503	4081	2.383	0.28154	25.625	0.3553	4375	17.856	170.7	0.53	0.69
COMBUSTOR	0	42	35 5														
64.679	37.401	4178	521.2(1342)	1.2198	25.855	3130											
64.679	15.871	3557	266.9(1116)	1.2495	25.911	2920	1.222	3567	2.407	0.26687	25.625	0.3749	4365	14.794	170.3	0.53	0.86
COMBUSTOR	0	43	36 3														
65.055	34.712	4181	520.2(1343)	1.2188	25.863	3130											
65.055	14.860	3568	268.1(1120)	1.2485	25.920	2923	1.215	3552	2.413	0.24810	25.625	0.4032	4363	13.694	170.3	0.53	0.87
COMBUSTOR REGEN		44	37 5														
65.055	34.712	4418	632.1(1430)	1.2039	25.805	3201											
65.055	17.752	3934	416.9(1252)	1.2284	25.888	3047	1.077	3282	2.439	0.24810	25.625	0.4032	4448	12.655	173.6	0.53	0.87
NOZZLE AE		45	38 5														
87.291	34.712	4181	520.2(1318)	1.2188	25.863	3130											
87.291	0.927	1936	-304.4(562)	1.3125	25.937	2207	2.911	6424	2.413	0.05165	25.625	1.9371	5576	5.156	217.6	0.53	0.87
NOZZLE PO		46	39 5														
87.291	34.712	4181	520.2(1318)	1.2188	25.863	3130											
87.291	0.381	1559	-423.2(443)	1.3309	25.937	1994	3.446	6871	2.413	0.02817	25.625	3.5514	5819	3.008	227.1	0.53	0.87
NOZZLE AE REGEN		47	40 5														
87.291	34.712	4418	632.1(1430)	1.2039	25.805	3201											
87.291	0.992	2130	-241.1(625)	1.3045	25.937	2308	2.864	6610	2.439	0.05165	25.625	1.9371	5757	5.306	224.7	0.53	0.87
NOZZLE PO REGEN		48	41 5														
87.291	34.712	4418	632.1(1430)	1.2039	25.805	3201											
87.291	0.381	1695	-380.9(486)	1.3236	25.937	2074	3.433	7120	2.439	0.02685	25.625	3.7265	6034	2.971	235.5	0.53	0.87
FICTIVE COMBUSTR		68	61 0														
65.055	192.342	4471	520.2(1443)	1.2150	26.209	3210											
65.055	0.381	1113	-666.9(307)	1.3552	26.294	1689	4.563	7707	2.287	0.04486	25.625	2.2304	6356	5.373	248.0	0.53	1.00
FICTIVE NOZZLE		69	62 0														
87.291	20.502	4134	503.9(1325)	1.2166	25.857	3110											
87.291	1.207	2301	-184.5(681)	1.2980	25.937	2393	2.453	5869	2.449	0.05165	25.625	1.9371	5273	4.711	205.8	0.53	0.87

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.040E 00	0.000	-4.446E-01	0.000	0.000	0.000	2.470E-02	2.731E 00	1.398E-03	0.000	0.000
1.836E 01	1.040E 00	0.000	-3.464E 01	0.000	0.000	0.000	1.634E 02	2.731E 00	1.398E-03	0.000	0.000
3.070E 01	2.870E 00	0.000	-1.931E 02	0.000	0.000	0.000	5.053E 02	7.538E 00	3.859E-03	0.000	0.000
3.508E 01	3.860E 00	0.000	-4.112E 02	0.000	0.000	0.000	6.804E 02	1.014E 01	5.190E-03	0.000	0.000
3.519E 01	4.174E 00	5.627E 00	-4.763E 02	0.000	0.000	0.000	6.854E 02	1.096E 01	5.613E-03	1.478E 01	7.566E-03
3.520E 01	4.191E 00	5.598E 00	-4.764E 02	0.000	0.000	0.000	6.857E 02	1.101E 01	5.635E-03	1.470E 01	7.526E-03
3.555E 01	5.170E 00	3.872E 00	-4.890E 02	0.000	0.000	0.000	7.209E 02	1.358E 01	6.951E-03	1.017E 01	5.206E-03
3.586E 01	5.000E 00	2.325E 00	-5.100E 02	-2.676E 02	-2.676E 02	0.000	7.529E 02	1.313E 01	6.723E-03	6.106E 00	3.126E-03
3.606E 01	4.895E 00	3.456E 00	-5.234E 02	-2.706E 02	-2.706E 02	0.000	7.729E 02	1.286E 01	6.582E-03	9.077E 00	4.647E-03
3.648E 01	4.195E 00	5.891E 00	-5.425E 02	-2.772E 02	-2.772E 02	0.000	8.164E 02	1.102E 01	5.640E-03	1.547E 01	7.920E-03
3.701E 01	5.250E 00	8.963E 00	-5.646E 02	-3.070E 02	-2.859E 02	-2.105E 01	8.726E 02	1.379E 01	7.059E-03	2.354E 01	1.205E-02
3.732E 01	4.890E 00	1.079E 01	-5.766E 02	-3.194E 02	-2.913E 02	-2.810E 01	9.063E 02	1.284E 01	6.575E-03	2.833E 01	1.450E-02
3.803E 01	4.085E 00	1.449E 01	-5.895E 02	-3.475E 02	-3.040E 02	-4.351E 01	9.834E 02	1.073E 01	5.492E-03	3.805E 01	1.948E-02
3.834E 01	7.772E 00	1.614E 01	-5.933E 02	-3.608E 02	-3.105E 02	-5.033E 01	1.018E 03	2.041E 01	1.045E-02	4.238E 01	2.170E-02
3.875E 01	1.252E 01	1.766E 01	-6.129E 02	-3.798E 02	-3.208E 02	-5.905E 01	1.064E 03	3.287E 01	1.683E-02	4.637E 01	2.374E-02
3.881E 01	1.327E 01	1.790E 01	-6.165E 02	-3.831E 02	-3.226E 02	-6.044E 01	1.072E 03	3.486E 01	1.785E-02	4.701E 01	2.407E-02
3.901E 01	1.556E 01	1.768E 01	-6.269E 02	-3.932E 02	-3.285E 02	-6.462E 01	1.094E 03	4.087E 01	2.092E-02	4.645E 01	2.378E-02
3.932E 01	1.855E 01	1.734E 01	-6.473E 02	-4.106E 02	-3.393E 02	-7.133E 01	1.130E 03	4.872E 01	2.494E-02	4.553E 01	2.331E-02
3.950E 01	2.021E 01	1.302E 01	-6.603E 02	-4.210E 02	-3.460E 02	-7.503E 01	1.150E 03	5.308E 01	2.718E-02	3.418E 01	1.750E-02
3.981E 01	1.804E 01	5.250E 00	-6.883E 02	-4.409E 02	-3.593E 02	-8.156E 01	1.187E 03	4.738E 01	2.426E-02	1.379E 01	7.059E-03
4.000E 01	1.677E 01	5.019E 00	-7.055E 02	-4.533E 02	-3.680E 02	-8.534E 01	1.209E 03	4.403E 01	2.254E-02	1.318E 01	6.749E-03
4.040E 01	2.097E 01	4.521E 00	-7.439E 02	-4.819E 02	-3.880E 02	-9.393E 01	1.256E 03	5.509E 01	2.820E-02	1.187E 01	6.079E-03
4.041E 01	2.108E 01	4.508E 00	-7.448E 02	-4.826E 02	-3.886E 02	-9.416E 01	1.257E 03	5.536E 01	2.834E-02	1.184E 01	6.062E-03
4.130E 01	3.044E 01	3.400E 00	-8.574E 02	-5.700E 02	-4.378E 02	-1.322E 02	1.362E 03	7.995E 01	4.093E-02	8.929E 00	4.571E-03
4.131E 01	3.055E 01	3.387E 00	-8.588E 02	-5.712E 02	-4.384E 02	-1.328E 02	1.363E 03	8.023E 01	4.107E-02	8.896E 00	4.554E-03
4.137E 01	3.123E 01	3.306E 00	-8.680E 02	-5.793E 02	-4.423E 02	-1.370E 02	1.371E 03	8.203E 01	4.199E-02	8.683E 00	4.445E-03
4.150E 01	3.255E 01	5.024E 00	-8.862E 02	-5.953E 02	-4.499E 02	-1.454E 02	1.386E 03	8.549E 01	4.376E-02	1.319E 01	6.755E-03
4.246E 01	2.539E 01	1.819E 01	-9.600E 02	-7.428E 02	-5.136E 02	-2.292E 02	1.501E 03	6.668E 01	3.413E-02	4.778E 01	2.446E-02
4.409E 01	3.299E 01	4.062E 01	-9.298E 02	-1.054E 03	-6.420E 02	-4.124E 02	1.699E 03	8.663E 01	4.435E-02	1.067E 02	5.462E-02
4.431E 01	3.399E 01	3.968E 01	-9.224E 02	-1.099E 03	-6.606E 02	-4.385E 02	1.725E 03	8.926E 01	4.569E-02	1.042E 02	5.336E-02
4.480E 01	3.626E 01	3.755E 01	-9.106E 02	-1.206E 03	-7.047E 02	-5.009E 02	1.785E 03	9.524E 01	4.876E-02	9.861E 01	5.049E-02
4.481E 01	3.623E 01	3.751E 01	-9.105E 02	-1.208E 03	-7.056E 02	-5.022E 02	1.786E 03	9.515E 01	4.871E-02	9.850E 01	5.043E-02
4.625E 01	3.159E 01	3.123E 01	-8.450E 02	-1.535E 03	-8.329E 02	-7.021E 02	1.963E 03	8.296E 01	4.247E-02	8.202E 01	4.199E-02
4.626E 01	3.155E 01	3.118E 01	-8.445E 02	-1.537E 03	-8.338E 02	-7.035E 02	1.964E 03	8.287E 01	4.243E-02	8.190E 01	4.193E-02
4.731E 01	2.817E 01	2.661E 01	-7.786E 02	-1.777E 03	-9.198E 02	-8.568E 02	2.094E 03	7.398E 01	3.787E-02	6.988E 01	3.578E-02
4.733E 01	2.809E 01	2.650E 01	-7.777E 02	-1.782E 03	-9.217E 02	-8.604E 02	2.097E 03	7.377E 01	3.777E-02	6.960E 01	3.563E-02
4.811E 01	2.565E 01	2.418E 01	-7.180E 02	-1.948E 03	-9.816E 02	-9.663E 02	2.194E 03	6.737E 01	3.449E-02	6.351E 01	3.251E-02
4.877E 01	2.219E 01	2.219E 01	-6.455E 02	-2.075E 03	-1.031E 03	-1.046E 03	2.277E 03	5.828E 01	2.984E-02	5.828E 01	2.984E-02
4.878E 01	2.216E 01	2.216E 01	-6.443E 02	-2.077E 03	-1.031E 03	-1.046E 03	2.278E 03	5.820E 01	2.980E-02	5.820E 01	2.980E-02
4.931E 01	2.057E 01	2.057E 01	-5.853E 02	-2.169E 03	-1.069E 03	-1.100E 03	2.345E 03	5.404E 01	2.766E-02	5.404E 01	2.766E-02
5.072E 01	1.566E 01	1.566E 01	-4.514E 02	-2.379E 03	-1.162E 03	-1.217E 03	2.522E 03	4.113E 01	2.106E-02	4.113E 01	2.106E-02
5.282E 01	1.444E 01	1.444E 01	-2.856E 02	-2.637E 03	-1.284E 03	-1.354E 03	2.789E 03	3.792E 01	1.941E-02	3.792E 01	1.941E-02
5.332E 01	1.213E 01	1.213E 01	-2.511E 02	-2.696E 03	-1.309E 03	-1.387E 03	2.852E 03	3.185E 01	1.631E-02	3.185E 01	1.631E-02
5.407E 01	1.070E 01	1.070E 01	-2.069E 02	-2.785E 03	-1.346E 03	-1.439E 03	2.948E 03	2.811E 01	1.439E-02	2.811E 01	1.439E-02
5.483E 01	9.262E 00	9.262E 00	-1.682E 02	-2.866E 03	-1.380E 03	-1.486E 03	3.046E 03	2.433E 01	1.245E-02	2.433E 01	1.245E-02
5.576E 01	9.017E 00	9.017E 00	-1.258E 02	-2.955E 03	-1.418E 03	-1.538E 03	3.164E 03	2.368E 01	1.212E-02	2.368E 01	1.212E-02
5.626E 01	8.885E 00	8.885E 00	-2.285E 01	-2.998E 03	-1.435E 03	-1.562E 03	3.209E 03	2.333E 01	1.195E-02	2.333E 01	1.195E-02
5.631E 01	4.950E 00	8.870E 00	-2.033E 01	-3.002E 03	-1.437E 03	-1.565E 03	3.216E 03	1.300E 01	6.655E-03	2.330E 01	1.193E-02
5.645E 01	4.950E 00	8.833E 00	-1.456E 01	-3.013E 03	-1.442E 03	-1.571E 03	3.234E 03	1.300E 01	6.655E-03	2.320E 01	1.188E-02
5.653E 01	8.812E 00	8.812E 00	-1.102E 01	-3.019E 03	-1.444E 03	-1.576E 03	3.245E 03	2.314E 01	1.185E-02	2.314E 01	1.185E-02
5.681E 01	8.737E 00	8.737E 00	4.407E-01	-3.041E 03	-1.453E 03	-1.588E 03	3.280E 03	2.295E 01	1.175E-02	2.295E 01	1.175E-02
5.704E 01	8.757E 00	8.757E 00	8.951E 00	-3.058E 03	-1.459E 03	-1.599E 03	3.309E 03	2.300E 01	1.177E-02	2.300E 01	1.177E-02
5.776E 01	8.820E 00	8.820E 00	3.278E 01	-3.112E 03	-1.478E 03	-1.634E 03	3.402E 03	2.316E 01	1.186E-02	2.316E 01	1.186E-02
5.878E 01	5.250E 00	5.250E 00	4.907E 01	-3.176E 03	-1.501E 03	-1.675E 03	3.532E 03	1.379E 01	7.059E-03	1.379E 01	7.059E-03
6.079E 01	6.225E 00	6.225E 00	5.041E 01	-3.276E 03	-1.535E 03	-1.741E 03	3.790E 03	1.635E 01	8.370E-03	1.635E 01	8.370E-03
6.221E 01	1.236E 01	1.236E 01	5.041E 01	-3.349E 03	-1.555E 03	-1.794E 03	3.972E 03	3.245E 01	1.661E-02	3.245E 01	1.661E-02

READING = 0071 BLOCK = 75 TIME = 174.938 MACH 6.0 PT = 743.749 TT = 2940.3

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.468E 01	1.587E 01	1.587E 01	5.041E 01	-3.498E 03	-1.595E 03	-1.904E 03	4.289E 03	4.168E 01	2.134E-02	4.168E 01	2.134E-02
6.505E 01	1.331E 01	1.641E 01	5.041E 01	-3.524E 03	-1.601E 03	-1.923E 03	4.337E 03	3.496E 01	1.790E-02	4.309E 01	2.206E-02
6.509E 01	1.331E 01	1.646E 01	5.041E 01	-3.527E 03	-1.602E 03	-1.925E 03	4.342E 03	3.496E 01	1.790E-02	4.324E 01	2.214E-02
6.529E 01	1.285E 01	1.675E 01	5.041E 01	-3.540E 03	-1.605E 03	-1.935E 03	4.368E 03	3.376E 01	1.728E-02	4.399E 01	2.252E-02
6.695E 01	9.040E 00	7.160E 00	1.791E 02	-3.638E 03	-1.630E 03	-2.008E 03	4.583E 03	2.374E 01	1.215E-02	1.880E 01	9.627E-03
6.762E 01	6.609E 00	7.462E 00	3.323E 02	-3.670E 03	-1.638E 03	-2.032E 03	4.665E 03	1.736E 01	8.886E-03	1.960E 01	1.003E-02
6.839E 01	3.815E 00	5.983E 00	4.955E 02	-3.707E 03	-1.646E 03	-2.061E 03	4.760E 03	1.002E 01	5.129E-03	1.571E 01	8.045E-03
6.911E 01	2.965E 00	4.600E 00	6.055E 02	-3.741E 03	-1.653E 03	-2.089E 03	4.848E 03	7.787E 00	3.987E-03	1.208E 01	6.185E-03
6.972E 01	2.245E 00	3.206E 00	6.751E 02	-3.769E 03	-1.657E 03	-2.113E 03	4.922E 03	5.896E 00	3.018E-03	8.420E 00	4.311E-03
7.067E 01	1.677E 00	1.035E 00	7.404E 02	-3.808E 03	-1.662E 03	-2.146E 03	5.036E 03	4.405E 00	2.255E-03	2.718E 00	1.392E-03
7.110E 01	1.420E 00	1.163E 00	7.598E 02	-3.824E 03	-1.664E 03	-2.159E 03	5.088E 03	3.729E 00	1.909E-03	3.055E 00	1.564E-03
7.263E 01	1.292E 00	1.620E 00	8.258E 02	-3.865E 03	-1.671E 03	-2.195E 03	5.273E 03	3.395E 00	1.738E-03	4.255E 00	2.178E-03
7.278E 01	1.280E 00	1.411E 00	8.319E 02	-3.868E 03	-1.671E 03	-2.197E 03	5.290E 03	3.362E 00	1.721E-03	3.705E 00	1.897E-03
7.353E 01	1.134E 00	3.650E-01	8.661E 02	-3.887E 03	-1.673E 03	-2.213E 03	5.374E 03	2.978E 00	1.525E-03	9.586E-01	4.908E-04
7.354E 01	1.133E 00	3.594E-01	8.668E 02	-3.887E 03	-1.673E 03	-2.213E 03	5.375E 03	2.976E 00	1.524E-03	9.440E-01	4.833E-04
7.486E 01	8.750E-01	0.000	8.880E 02	-3.923E 03	-1.677E 03	-2.246E 03	5.427E 03	2.298E 00	1.176E-03	0.000	0.000
7.771E 01	8.550E-01	0.000	9.226E 02	-3.929E 03	-1.682E 03	-2.246E 03	5.525E 03	2.246E 00	1.150E-03	0.000	0.000
8.161E 01	8.800E-01	0.000	9.597E 02	-3.933E 03	-1.687E 03	-2.246E 03	5.630E 03	2.311E 00	1.183E-03	0.000	0.000
8.442E 01	6.950E-01	0.000	9.772E 02	-3.936E 03	-1.690E 03	-2.246E 03	5.684E 03	1.825E 00	9.345E-04	0.000	0.000
8.728E 01	8.950E-01	0.000	9.964E 02	-3.942E 03	-1.696E 03	-2.246E 03	5.707E 03	2.351E 00	1.203E-03	0.000	0.000
8.729E 01	8.954E-01	0.000	9.964E 02	-3.942E 03	-1.696E 03	-2.246E 03	5.707E 03	2.352E 00	1.204E-03	0.000	0.000

READING = 0071 BLOCK = 75 TIME = 174.938 MACH 6.0 PT = 741.749 TT = 2940.3

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.281E 02	1.281E 02	2.400E-03	4.535E-02
4.041E 01	1.771E-01	1.283E 02	2.646E-03	3.432E-02
4.130E 01	1.671E 01	1.450E 02	2.769E-03	4.111E-02
4.131E 01	1.765E-01	1.452E 02	2.574E-03	4.359E-02
4.137E 01	1.117E 00	1.463E 02	2.550E-03	4.438E-02
4.150E 01	2.129E 00	1.485E 02	2.564E-03	4.674E-02
4.246E 01	1.588E 01	1.643E 02	2.624E-03	4.983E-02
4.409E 01	2.451E 01	1.888E 02	2.683E-03	6.536E-02
4.431E 01	3.035E 00	1.919E 02	2.864E-03	6.115E-02
4.480E 01	7.146E 00	1.990E 02	2.859E-03	6.108E-02
4.481E 01	1.416E-01	1.992E 02	2.872E-03	6.076E-02
4.625E 01	2.162E 01	2.208E 02	3.008E-03	5.405E-02
4.626E 01	1.494E-01	2.209E 02	2.775E-03	5.852E-02
4.731E 01	1.459E 01	2.355E 02	2.720E-03	5.414E-02
4.733E 01	3.436E-01	2.359E 02	2.746E-03	5.355E-02
4.811E 01	1.035E 01	2.462E 02	2.708E-03	5.060E-02
4.877E 01	8.760E 00	2.550E 02	2.921E-03	4.442E-02
4.878E 01	1.281E-01	2.551E 02	2.701E-03	4.770E-02
4.931E 01	6.339E 00	2.614E 02	2.665E-03	4.539E-02
5.072E 01	1.555E 01	2.770E 02	2.610E-03	3.746E-02
5.282E 01	2.001E 01	2.970E 02	2.566E-03	3.425E-02
5.332E 01	4.455E 00	3.015E 02	2.733E-03	2.868E-02
5.407E 01	6.676E 00	3.081E 02	2.635E-03	2.683E-02
5.483E 01	6.400E 00	3.145E 02	2.590E-03	2.434E-02
5.576E 01	7.336E 00	3.219E 02	2.536E-03	2.393E-02
5.626E 01	2.397E 00	3.243E 02	2.554E-03	2.207E-02
5.631E 01	3.548E-01	3.246E 02	2.748E-03	1.756E-02
5.645E 01	9.147E-01	3.255E 02	2.559E-03	1.848E-02
5.653E 01	5.574E-01	3.261E 02	3.177E-03	1.803E-02
5.681E 01	1.971E 00	3.281E 02	2.750E-03	2.044E-02
5.704E 01	1.478E 00	3.295E 02	2.747E-03	2.045E-02
5.776E 01	4.703E 00	3.342E 02	2.741E-03	2.047E-02
5.878E 01	6.875E 00	3.411E 02	2.734E-03	1.435E-02
6.079E 01	1.321E 01	3.543E 02	2.340E-03	1.809E-02
6.221E 01	8.566E 00	3.629E 02	2.586E-03	2.684E-02
6.468E 01	1.456E 01	3.775E 02	3.056E-03	2.559E-02
6.505E 01	2.158E 00	3.796E 02	3.225E-03	2.290E-02
6.509E 01	2.293E-01	3.798E 02	3.298E-03	2.342E-02
6.529E 01	1.159E 00	3.810E 02	3.296E-03	2.336E-02
6.695E 01	9.553E 00	3.906E 02	3.162E-03	1.731E-02
6.762E 01	3.469E 00	3.940E 02	3.135E-03	1.590E-02
6.839E 01	3.689E 00	3.977E 02	3.070E-03	1.261E-02
6.911E 01	3.014E 00	4.007E 02	3.026E-03	1.057E-02
6.972E 01	2.206E 00	4.029E 02	2.973E-03	8.391E-03
7.067E 01	2.605E 00	4.055E 02	2.865E-03	5.013E-03
7.110E 01	9.399E-01	4.065E 02	2.856E-03	4.830E-03
7.263E 01	3.401E 00	4.099E 02	2.871E-03	5.276E-03
7.278E 01	3.218E-01	4.102E 02	2.858E-03	4.969E-03
7.353E 01	1.298E 00	4.115E 02	2.763E-03	3.170E-03
7.354E 01	2.034E-03	4.115E 02	2.762E-03	3.159E-03
7.486E 01	6.846E-01	4.122E 02	2.781E-03	3.564E-03
7.771E 01	1.348E 00	4.135E 02	2.763E-03	3.482E-03
8.161E 01	1.435E 00	4.150E 02	2.750E-03	3.535E-03
8.442E 01	6.951E-01	4.157E 02	2.699E-03	2.929E-03
8.728E 01	2.893E-01	4.160E 02	2.727E-03	3.547E-03
8.729E 01	0.000	4.160E 02	2.727E-03	3.548E-03

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	569.	(LBF)
MEASURED THRUST	426.	(LBF)
CALCULATED SPECIFIC IMPULSE	1384.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1036.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.2305	
MEASURED THRUST COEFFICIENT	0.1724	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	5444.	(LBF)
NET THRUST	740.	(LBF)
SPECIFIC IMPULSE	1799.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.2996	

MOMENTUM AND FORCES

INLET FRICTION DRAG	128.1	(LBF)
INLET MOMENTUM CHANGE	-872.0	(LBF)
COMBUSTOR FRICTION DRAG	251.5	(LBF)
COMBUSTOR STRUT DRAG	-16.12	(LBF)
COMBUSTOR MOMENTUM CHANGE	532.	(LBF)
NOZZLE FRICTION DRAG	36.34	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	910.	(LBF)
NOZZLE PRESSURE INTEGRAL	946.	(LBF)
EXTERNAL FRICTION DRAG	65.90	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1005.	(LBF)
TOTAL EXTERNAL DRAG	-1071.	(LBF)
TOTAL STRUT DRAG	-16.12	(LBF)
CAVITY FORCE	-1136.	(LBF)
CALCULATED LOAD CELL FORCE	-1638.	(LBF)
MEASURED LOAD CELL FORCE	-1779.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, 0.0, -120.9, -105.2,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3148	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.199	(IN)
NOZZLE SHROUD TRAILING EDGE	73.539	(IN)
NOZZLE PLUG TRAILING EDGE	87.291	(IN)
STRUT LEADING EDGE	56.455	(IN)
STRUT TRAILING EDGE	65.055	(IN)
COMBUSTOR EXIT	65.055	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.9300	
ADDITIVE DRAG COEFFICIENT	0.0052	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1436	
DELTA PT2	0.1186	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.2586	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1459	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8678	
INLET PROCESS EFFICIENCY - SUBSONIC	0.8973	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9125	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8774	
ENTHALPY AT P0 - SUPERSONIC	6.64	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	30.75	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0163	
EQUIVALENCE RATIO	0.527	
COMBUSTOR EFFICIENCY	0.868	
TOTAL PRESSURE RATIO	0.1805	
COMBUSTOR EFFECTIVENESS	0.7871	
INJECTOR DISCHARGE COEFFICIENTS	0.7215, 0.6711, 0.8991, 0.6748	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9456	
NOZZLE COEFFICIENT - CT	0.8738	
PROCESS EFFICIENCY	0.8504	
KINETIC ENERGY EFFICIENCY	0.8777	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.300	B
1C	44.300	
2A	48.775	D
2C	46.250	E
3A	54.065	
3B	56.250	
4	44.800	

Reading 71

t = 193.84 sec.

03/23/75

READING = 0071 BLOCK = 96 TIME = 193.838 MACH 6.0 PT = 743.499 TT = 2912.6

RAMJET PERFORMANCE

SUMMARY REPORT

370

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0	5														
-0.000	743.499	2913	643.9	(770)	1.2960	28.898	2548											
-0.000	-0.377	389	-35.7	(93)	1.3986	28.897	967	6.031	5832	1.819	0.10583	25.254	0.9317	4667	9.591	184.8		
SPIKE TIP NS		2	0	5														
0.600	18.175	2913	643.9	(770)	1.2960	28.897	2548											
-0.600	16.509	2849	624.8	(751)	1.2980	28.897	2522	0.387	977	2.074	0.10583	25.254	0.9317	4706	1.606	186.4		
WIND TUNNEL		3	0	0														
0.000	743.499	2913	643.9	(770)	1.2960	28.898	2548											
0.000	-0.383	390	-35.3	(94)	1.3986	28.897	969	6.016	5830	1.819	0.10691	25.512	0.9317	4714	9.686	184.8		
SPIKE TIP NS		4	0	0														
0.600	18.175	2913	643.9	(770)	1.2960	28.897	2548											
0.600	16.470	2848	624.4	(751)	1.2980	28.897	2522	0.392	982	2.074	0.10691	25.512	0.9317	4714	1.642	184.8		
INLET THROAT		5	0	4														
40.400	192.600	2828	618.5	(745)	1.2987	28.897	2514											
40.400	17.880	1587	265.7	(395)	1.3438	28.897	1915	2.194	4202	1.903	0.88544	25.254	0.1114	3808	57.820	150.8		
INLET UPNRSK		6	0	3														
40.400	192.600	2828	618.5	(745)	1.2987	28.897	2514											
40.400	15.236	1523	248.6	(378)	1.3472	28.897	1879	2.290	4303	1.903	0.80495	25.254	0.1225	3855	53.823	152.7		
INLET DNNRSK		7	0	4														
40.400	107.876	2828	618.5	(745)	1.2987	28.897	2514											
40.400	90.592	2716	585.2	(712)	1.3028	28.897	2467	0.523	1291	1.943	0.80495	25.254	0.1225	3855	16.145	152.7		
COMBUSTOR	0	8	1	21														
40.410	162.264	2783	618.2	(766)	1.3014	27.563	2556											
40.410	12.727	1489	236.3	(386)	1.3505	27.563	1904	2.295	4371	1.988	0.88869	25.350	0.1114	3807	60.369	150.2	0.12	0.07
COMBUSTOR	0	9	2	21														
41.300	127.825	2710	619.9	(775)	1.3054	26.391	2582											
41.300	16.496	1640	290.1	(447)	1.3445	26.391	2038	1.993	4062	2.067	0.89362	25.439	0.1111	3681	56.411	144.7	0.24	0.04
COMBUSTOR	0	10	3	21														
41.310	132.939	2667	619.8	(762)	1.3074	26.346	2565											
41.310	16.539	1596	290.7	(434)	1.3469	26.346	2014	2.015	4058	2.059	0.89342	25.439	0.1112	3680	56.349	144.7	0.24	0.01
COMBUSTOR	0	11	4	21														
41.375	132.249	2660	619.4	(759)	1.3077	26.340	2562											
41.375	16.814	1600	293.8	(435)	1.3468	26.340	2017	2.002	4037	2.059	0.89477	25.439	0.1110	3670	56.131	144.3	0.24	0.00
COMBUSTOR	0	12	5	21														
41.500	130.638	2656	618.6	(758)	1.3078	26.339	2561											
41.500	18.447	1641	306.2	(448)	1.3448	26.339	2041	1.937	3954	2.059	0.89498	25.439	0.1110	3650	54.990	143.5	0.24	0.00
COMBUSTOR	0	13	6	21														
42.460	120.320	2633	611.3	(751)	1.3086	26.339	2550											
42.460	23.739	1770	344.5	(486)	1.3390	26.338	2115	1.727	3653	2.063	0.88619	25.439	0.1121	3570	50.309	140.3	0.24	0.00
COMBUSTOR	0	14	7	4														
44.095	95.713	3085	595.2	(887)	1.2871	26.873	2710											
44.095	48.406	2642	451.1	(746)	1.3019	26.874	2522	1.065	2685	2.116	0.85573	25.439	0.1161	3562	35.710	140.0	0.24	0.42
COMBUSTOR	0	15	8	2														
44.310	95.367	3086	592.8	(888)	1.2870	26.882	2710											
44.310	49.511	2659	453.8	(752)	1.3012	26.883	2529	1.043	2637	2.116	0.85424	25.439	0.1163	3559	35.008	139.9	0.24	0.43
COMBUSTOR	0	16	9	2														
44.800	94.440	3059	586.9	(879)	1.2880	26.873	2700											
44.800	52.028	2671	460.8	(756)	1.3009	26.873	2536	0.991	2513	2.114	0.85092	25.439	0.1167	3542	33.226	139.2	0.24	0.42
COMBUSTOR	0	17	10	2														
44.810	94.417	3059	586.8	(879)	1.2880	26.872	2700											
44.810	51.972	2670	460.5	(755)	1.3010	26.873	2535	0.992	2514	2.114	0.85092	25.439	0.1167	3542	33.245	139.2	0.24	0.42
COMBUSTOR	0	18	11	9														
46.250	88.399	2641	588.7	(829)	1.3090	23.929	2680											
46.250	43.765	2231	446.8	(688)	1.3230	23.929	2476	1.076	2665	2.258	0.80957	25.677	0.1238	3515	33.527	136.9	0.54	0.10

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	2														
46.260	88.353	2641	588.6(	829)	1.3090	23.930	2680											
46.260	43.708	2231	446.5(	688)	1.3230	23.930	2476	1.077	2660	2.258	0.80907	25.677	0.1239	3515	33.526	136.9	0.54	0.10
COMBUSTOR	0	20	13	4														
47.310	84.637	2718	574.9(	854)	1.3050	24.038	2708											
47.310	37.725	2241	409.7(	690)	1.3212	24.039	2475	1.162	2875	2.268	0.75281	25.677	0.1332	3581	33.636	139.5	0.54	0.15
COMBUSTOR	0	21	14	2														
47.335	84.576	2719	574.6(	854)	1.3050	24.040	2709											
47.335	37.657	2242	409.1(	690)	1.3212	24.040	2475	1.163	2877	2.268	0.75197	25.677	0.1333	3582	33.625	139.5	0.54	0.15
COMBUSTOR	0	22	15	4														
48.110	80.755	2830	564.9(	891)	1.2995	24.173	2750											
48.110	35.252	2328	389.7(	717)	1.3165	24.173	2511	1.180	2962	2.282	0.70147	25.677	0.1429	3654	32.286	142.3	0.54	0.20
COMBUSTOR	0	23	16	6														
48.775	76.683	2594	567.9(	882)	1.3119	22.004	2773											
48.775	30.426	2072	373.8(	689)	1.3302	22.004	2496	1.249	3116	2.421	0.65159	25.902	0.1552	3718	31.557	143.6	0.83	0.11
COMBUSTOR	0	24	17	2														
48.785	76.624	2596	567.8(	883)	1.3118	22.006	2774											
48.785	30.383	2073	373.4(	690)	1.3301	22.006	2496	1.249	3118	2.421	0.65075	25.902	0.1554	3720	31.536	143.6	0.83	0.11
COMBUSTOR	0	25	18	4														
49.315	73.706	2690	562.2(	916)	1.3073	22.099	2813											
49.315	28.129	2133	354.1(	710)	1.3266	22.099	2523	1.279	3227	2.434	0.60860	25.902	0.1662	3795	30.519	146.5	0.83	0.14
COMBUSTOR	0	26	19	4														
50.725	67.877	2878	549.0(	984)	1.2982	22.295	2886											
50.725	22.644	2220	300.7(	738)	1.3208	22.296	2557	1.378	3525	2.459	0.51870	25.902	0.1950	3968	28.413	153.2	0.83	0.21
COMBUSTOR	0	27	20	5														
52.825	59.925	3158	532.8(1085)		1.2844	22.589	2988											
52.825	18.562	2414	246.8(	804)	1.3099	22.590	2638	1.434	3783	2.492	0.42513	25.902	0.2379	4176	24.991	161.2	0.83	0.30
COMBUSTOR	0	28	21	4														
53.325	57.852	3242	529.4(1116)		1.2802	22.675	3017											
53.325	18.227	2495	240.3(	832)	1.3060	22.677	2673	1.423	3803	2.501	0.40776	25.902	0.2480	4220	24.100	162.9	0.83	0.33
COMBUSTOR	0	29	22	4														
54.075	56.519	3290	524.5(1133)		1.2777	22.732	3032											
54.075	16.587	2494	216.1(	831)	1.3052	22.735	2668	1.472	3928	2.506	0.38437	25.902	0.2631	4280	23.466	165.3	0.83	0.35
COMBUSTOR	0	30	23	3														
54.835	55.765	3310	519.9(1141)		1.2765	22.762	3038											
54.835	14.925	2458	189.9(	817)	1.3061	22.765	2648	1.535	4064	2.508	0.36348	25.902	0.2782	4335	22.954	167.4	0.83	0.36
COMBUSTOR	0	31	24	4														
55.760	54.693	3339	514.7(1151)		1.2749	22.802	3047											
55.760	13.418	2432	163.5(	807)	1.3065	22.806	2632	1.593	4192	2.511	0.34128	25.902	0.2963	4393	22.233	169.6	0.83	0.37
COMBUSTOR	0	32	25	5														
56.260	43.140	3717	512.1(1291)		1.2535	23.181	3161											
56.260	12.604	2861	166.6(	960)	1.2863	23.196	2809	1.480	4158	2.555	0.27494	25.902	0.3678	4535	17.767	175.1	0.83	0.49
COMBUSTOR	0	33	26	5														
56.315	49.546	3400	511.9(1173)		1.2715	22.868	3066											
56.315	9.688	2354	107.2(	777)	1.3084	22.873	2588	1.739	4500	2.524	0.27407	25.902	0.3690	4538	19.166	175.2	0.83	0.39
COMBUSTOR	0	34	27	3														
56.455	49.485	3403	511.2(1175)		1.2713	22.873	3067											
56.455	9.574	2351	104.0(	776)	1.3084	22.878	2586	1.746	4514	2.524	0.27210	25.902	0.3717	4545	19.088	175.5	0.83	0.39
COMBUSTOR	0	35	28	6														
56.535	44.118	3692	510.8(1282)		1.2550	23.159	3154											
56.535	12.156	2803	153.3(	938)	1.2887	23.173	2784	1.520	4230	2.552	0.27515	25.902	0.3675	4550	18.088	175.7	0.83	0.48
COMBUSTOR	0	36	29	3														
56.815	44.939	3668	509.6(1273)		1.2565	23.138	3147											
56.815	11.700	2746	140.7(	917)	1.2910	23.151	2759	1.557	4296	2.548	0.27424	25.902	0.3688	4564	18.309	176.2	0.83	0.48
COMBUSTOR	0	37	30	3														
57.041	45.756	3642	508.5(1263)		1.2580	23.115	3139											
57.041	11.325	2693	130.3(	898)	1.2931	23.127	2736	1.590	4350	2.545	0.27382	25.902	0.3693	4574	18.512	176.6	0.83	0.47

READING = 0071 BLOCK = 96 TIME = 193.838 MACH 6.0 PT = 743.499 TT = 2912.6

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 4														
57.765	48.028	3554	505.4(1230)	1.2630	23.035	3113											
57.765	10.125	2523	100.1(836)	1.3002	23.043	2660	1.693	4503	2.535	0.26947	25.902	0.3753	4598	18.858	177.5	0.83	0.44
COMBUSTOR	0	39	32 8														
58.785	87.073	2860	501.7(975)	1.2976	22.389	2871											
58.785	5.175	1429	-19.0(457)	1.3539	22.389	2073	2.462	5104	2.430	0.26776	25.902	0.3777	4610	21.239	178.0	0.83	0.24
COMBUSTOR	0	40	33 6														
60.795	50.542	3515	495.2(1215)	1.2649	23.021	3099											
60.795	10.050	2458	82.0(812)	1.3027	23.028	2629	1.729	4547	2.527	0.27708	25.902	0.3650	4600	19.579	177.6	0.83	0.44
COMBUSTOR	0	41	34 4														
62.215	46.830	3731	490.4(1295)	1.2523	23.250	3161											
62.215	12.312	2809	118.8(939)	1.2873	23.265	2780	1.651	4312	2.546	0.28459	25.902	0.3553	4592	19.073	177.3	0.83	0.51
COMBUSTOR	0	42	35 5														
64.679	38.840	4182	481.3(1464)	1.2206	23.748	3269											
64.679	17.582	3605	223.5(1235)	1.2483	23.798	3066	1.171	3591	2.582	0.26976	25.902	0.3749	4579	15.055	176.8	0.83	0.67
COMBUSTOR	0	43	36 4														
65.055	35.647	4254	479.7(1491)	1.2141	23.832	3283											
65.055	18.550	3780	261.2(1302)	1.2379	23.886	3121	1.059	3306	2.592	0.25078	25.902	0.4032	4578	12.886	176.7	0.83	0.70
COMBUSTOR REGEN		44	37 21														
65.055	35.647	4507	614.8(1593)	1.1975	23.762	3360											
65.055	30.478	4396	556.5(1548)	1.2028	23.790	3324	0.514	1708	2.623	0.25078	25.902	0.4032	4523	6.656	174.6	0.83	0.70
NOZZLE AE		45	38 5														
87.291	35.647	4254	479.7(1458)	1.2141	23.832	3282											
87.291	1.009	2013	-424.6(638)	1.3089	23.915	2340	2.874	6727	2.592	0.05221	25.902	1.9371	5916	5.458	228.4	0.83	0.70
NOZZLE PO		46	39 5														
87.291	35.647	4254	479.7(1458)	1.2141	23.832	3282											
87.291	0.377	1586	-571.2(491)	1.3292	23.915	2094	3.464	7252	2.592	0.02668	25.902	3.7904	6204	3.007	239.5	0.83	0.70
NOZZLE AE REGEN		47	40 5														
87.291	35.647	4507	614.8(1593)	1.1975	23.762	3360											
87.291	1.086	2233	-346.3(716)	1.3001	23.915	2456	2.823	6935	2.623	0.05221	25.902	1.9371	6122	5.626	236.3	0.83	0.70
NOZZLE PO REGEN		48	41 5														
87.291	35.647	4507	614.8(1593)	1.1975	23.762	3360											
87.291	0.377	1738	-520.0(542)	1.3214	23.915	2185	3.449	7536	2.623	0.02531	25.902	3.9952	6453	2.964	249.1	0.83	0.70
FICTIVE COMBUSTR		68	61 0														
65.055	192.600	5040	479.7(1790)	1.1774	24.716	3455											
65.055	0.377	1427	-1020.4(426)	1.3276	25.034	1939	4.467	8664	2.469	0.03711	25.902	2.7254	7238	4.996	279.5	0.83	1.00
FICTIVE NOZZLE		69	62 0														
87.291	25.158	4191	452.2(1465)	1.2144	23.834	3258											
87.291	1.187	2227	-348.2(714)	1.3003	23.915	2454	2.579	6329	2.614	0.05221	25.902	1.9371	5684	5.135	219.4	0.83	0.70

READING = 0071 BLOCK = 198 TIME = 265.638 MACH 6.0 PI = 742.499 TT = 2902.1

XABS	P-IB	P-OB	PDA	QUX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.505E 01	1.837E 01	1.801E 01	1.547E 02	-4.036E 03	-2.172E 03	-1.865E 03	4.337E 03	4.895E 01	2.475E-02	4.799E 01	2.426E-02
6.509E 01	1.837E 01	1.80/E 01	1.547E 02	-4.041E 03	-2.174E 03	-1.867E 03	4.342E 03	4.895E 01	2.475E-02	4.813E 01	2.433E-02
6.529E 01	1.748E 01	1.632E 01	1.547E 02	-4.062E 03	-2.184E 03	-1.877E 03	4.368E 03	4.657E 01	2.354E-02	4.882E 01	2.468E-02
6.695E 01	1.006E 01	8.310E 00	3.048E 02	-4.211E 03	-2.257E 03	-1.954E 03	4.583E 03	2.680E 01	1.355E-02	2.214E 01	1.119E-02
6.762E 01	7.459E 00	8.025E 00	4.762E 02	-4.261E 03	-2.280E 03	-1.982E 03	4.665E 03	1.987E 01	1.005E-02	2.138E 01	1.081E-02
6.839E 01	4.470E 00	6.201E 00	6.560E 02	-4.315E 03	-2.301E 03	-2.015E 03	4.760E 03	1.191E 01	6.020E-03	1.652E 01	8.351E-03
6.911E 01	3.515E 00	4.495E 00	7.757E 02	-4.363E 03	-2.316E 03	-2.047E 03	4.848E 03	9.363E 00	4.733E-03	1.197E 01	6.054E-03
6.972E 01	2.705E 00	3.760E 00	8.537E 02	-4.401E 03	-2.327E 03	-2.074E 03	4.922E 03	7.206E 00	3.643E-03	1.002E 01	5.064E-03
7.067E 01	1.931E 00	2.615E 00	9.402E 02	-4.449E 03	-2.340E 03	-2.108E 03	5.036E 03	5.143E 00	2.600E-03	6.966E 00	3.522E-03
7.110E 01	1.580E 00	2.441E 00	9.700E 02	-4.466E 03	-2.345E 03	-2.121E 03	5.086E 03	4.209E 00	2.128E-03	6.502E 00	3.287E-03
7.263E 01	1.598E 00	1.820E 00	1.058E 03	-4.517E 03	-2.360E 03	-2.158E 03	5.273E 03	4.258E 00	2.152E-03	4.849E 00	2.451E-03
7.278E 01	1.600E 00	1.592E 00	1.065E 03	-4.522E 03	-2.361E 03	-2.161E 03	5.290E 03	4.262E 00	2.155E-03	4.242E 00	2.145E-03
7.353E 01	1.504E 00	4.550E-01	1.106E 03	-4.545E 03	-2.367E 03	-2.178E 03	5.374E 03	4.008E 00	2.026E-03	1.212E 00	6.128E-04
7.354E 01	1.504E 00	4.489E-01	1.107E 03	-4.545E 03	-2.367E 03	-2.178E 03	5.375E 03	4.007E 00	2.026E-03	1.196E 00	6.046E-04
7.486E 01	1.335E 00	0.000	1.137E 03	-4.591E 03	-2.377E 03	-2.214E 03	5.427E 03	3.556E 00	1.798E-03	0.000	0.000
7.771E 01	1.890E 00	0.000	1.202E 03	-4.553E 03	-2.395E 03	-2.138E 03	5.525E 03	5.035E 00	2.545E-03	0.000	0.000
8.161E 01	1.335E 00	0.000	1.271E 03	-4.552E 03	-2.414E 03	-2.138E 03	5.630E 03	3.556E 00	1.798E-03	0.000	0.000
8.442E 01	1.010E 00	0.000	1.297E 03	-4.569E 03	-2.431E 03	-2.138E 03	5.684E 03	2.691E 00	1.360E-03	0.000	0.000
8.728E 01	1.480E 00	0.000	1.327E 03	-4.597E 03	-2.459E 03	-2.138E 03	5.707E 03	3.943E 00	1.993E-03	0.000	0.000
8.729E 01	1.481E 00	0.000	1.327E 03	-4.597E 03	-2.459E 03	-2.138E 03	5.707E 03	3.945E 00	1.995E-03	0.000	0.000

READING = 0071 BLOCK = 198 TIME = 285.638 MACH 6.0 PT = 742.499 TT = 2902.1

XABS	P-IB	P-Ob	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.040E 00	0.000	-4.405E-01	0.000	0.000	0.000	2.470E-02	2.771E 00	1.401E-03	0.000	0.000
1.836E 01	1.040E 00	0.000	-3.463E 01	0.000	0.000	0.000	1.434E 02	2.771E 00	1.401E-03	0.000	0.000
3.070E 01	2.970E 00	0.000	-1.972E 02	0.000	0.000	0.000	5.963E 02	7.912E 00	4.000E-03	0.000	0.000
3.508E 01	3.824E 00	0.000	-4.173E 02	0.000	0.000	0.000	6.804E 02	1.019E 01	5.150E-03	0.000	0.000
3.519E 01	4.141E 00	5.546E 00	-4.816E 02	0.000	0.000	0.000	6.854E 02	1.103E 01	5.577E-03	1.478E 01	7.470E-03
3.520E 01	4.158E 00	5.517E 00	-4.817E 02	0.000	0.000	0.000	6.857E 02	1.108E 01	5.600E-03	1.470E 01	7.430E-03
3.555E 01	5.145E 00	5.794E 00	-4.944E 02	0.000	0.000	0.000	7.209E 02	1.371E 01	6.929E-03	1.011E 01	5.110E-03
3.586E 01	5.009E 00	2.250E 00	-5.156E 02	-5.420E 02	-5.420E 02	0.000	7.529E 02	1.334E 01	6.746E-03	5.994E 00	3.030E-03
3.606E 01	4.925E 00	3.406E 00	-5.292E 02	-5.481E 02	-5.481E 02	0.000	7.729E 02	1.312E 01	6.633E-03	9.075E 00	4.588E-03
3.648E 01	4.129E 00	5.895E 00	-5.482E 02	-5.615E 02	-5.615E 02	0.000	8.164E 02	1.100E 01	5.561E-03	1.570E 01	7.939E-03
3.701E 01	5.115E 00	9.035E 00	-5.691E 02	-5.968E 02	-5.791E 02	-1.769E 01	8.726E 02	1.365E 01	6.869E-03	2.407E 01	1.217E-02
3.732E 01	4.857E 00	1.090E 01	-5.803E 02	-6.136E 02	-5.900E 02	-2.361E 01	9.063E 02	1.294E 01	6.542E-03	2.904E 01	1.468E-02
3.803E 01	4.280E 00	1.451E 01	-5.941E 02	-6.523E 02	-6.157E 02	-3.658E 01	9.834E 02	1.140E 01	5.764E-03	3.866E 01	1.955E-02
3.834E 01	8.016E 00	1.612E 01	-5.990E 02	-6.704E 02	-6.281E 02	-4.231E 01	1.018E 03	2.136E 01	1.080E-02	4.296E 01	2.172E-02
3.875E 01	1.282E 01	1.766E 01	-6.203E 02	-6.949E 02	-6.453E 02	-4.965E 01	1.064E 03	3.417E 01	1.727E-02	4.703E 01	2.378E-02
3.881E 01	1.359E 01	1.790E 01	-6.242E 02	-6.990E 02	-6.482E 02	-5.082E 01	1.072E 03	3.621E 01	1.831E-02	4.769E 01	2.411E-02
3.901E 01	1.591E 01	1.774E 01	-6.353E 02	-7.115E 02	-6.571E 02	-5.434E 01	1.094E 03	4.238E 01	2.143E-02	4.725E 01	2.389E-02
3.932E 01	1.870E 01	1.747E 01	-6.563E 02	-7.324E 02	-6.724E 02	-5.998E 01	1.130E 03	4.981E 01	2.518E-02	4.655E 01	2.354E-02
3.950E 01	2.025E 01	1.311E 01	-6.693E 02	-7.445E 02	-6.814E 02	-6.310E 01	1.150E 03	5.395E 01	2.727E-02	3.493E 01	1.766E-02
3.981E 01	1.805E 01	5.275E 00	-6.972E 02	-7.671E 02	-6.985E 02	-6.860E 01	1.187E 03	4.809E 01	2.431E-02	1.405E 01	7.104E-03
4.000E 01	1.676E 01	5.047E 00	-7.144E 02	-7.810E 02	-7.092E 02	-7.178E 01	1.209E 03	4.464E 01	2.257E-02	1.345E 01	6.798E-03
4.040E 01	2.003E 01	4.555E 00	-7.514E 02	-8.122E 02	-7.334E 02	-7.886E 01	1.256E 03	5.336E 01	2.697E-02	1.214E 01	6.135E-03
4.041E 01	2.011E 01	4.543E 00	-7.523E 02	-8.131E 02	-7.340E 02	-7.906E 01	1.257E 03	5.357E 01	2.708E-02	1.210E 01	6.118E-03
4.131E 01	2.747E 01	3.436E 00	-8.556E 02	-9.016E 02	-7.948E 02	-1.068E 02	1.363E 03	7.318E 01	3.700E-02	9.154E 00	4.628E-03
4.137E 01	2.800E 01	3.356E 00	-8.639E 02	-9.092E 02	-7.995E 02	-1.097E 02	1.371E 03	7.460E 01	3.771E-02	8.941E 00	4.520E-03
4.150E 01	2.902E 01	3.956E 00	-8.801E 02	-9.242E 02	-8.089E 02	-1.154E 02	1.386E 03	7.732E 01	3.909E-02	1.054E 01	5.328E-03
4.246E 01	2.085E 01	8.558E 00	-9.613E 02	-1.057E 03	-8.852E 02	-1.716E 02	1.501E 03	5.554E 01	2.808E-02	2.280E 01	1.153E-02
4.409E 01	2.504E 01	1.639E 01	-1.015E 03	-1.323E 03	-1.024E 03	-2.994E 02	1.699E 03	6.671E 01	3.373E-02	4.367E 01	2.208E-02
4.431E 01	2.559E 01	1.725E 01	-1.021E 03	-1.360E 03	-1.042E 03	-3.181E 02	1.725E 03	6.818E 01	3.447E-02	4.596E 01	2.323E-02
4.480E 01	2.685E 01	1.920E 01	-1.034E 03	-1.447E 03	-1.085E 03	-3.622E 02	1.785E 03	7.153E 01	3.616E-02	5.116E 01	2.586E-02
4.481E 01	2.687E 01	1.924E 01	-1.035E 03	-1.449E 03	-1.086E 03	-3.631E 02	1.786E 03	7.157E 01	3.618E-02	5.126E 01	2.591E-02
4.625E 01	2.920E 01	2.498E 01	-1.023E 03	-1.708E 03	-1.207E 03	-5.004E 02	1.963E 03	7.780E 01	3.933E-02	6.654E 01	3.364E-02
4.626E 01	2.922E 01	2.502E 01	-1.023E 03	-1.709E 03	-1.208E 03	-5.013E 02	1.964E 03	7.784E 01	3.935E-02	6.665E 01	3.369E-02
4.731E 01	3.092E 01	2.920E 01	-9.674E 02	-1.897E 03	-1.292E 03	-6.050E 02	2.094E 03	8.238E 01	4.165E-02	7.779E 01	3.933E-02
4.733E 01	3.113E 01	2.930E 01	-9.664E 02	-1.902E 03	-1.294E 03	-6.075E 02	2.097E 03	8.292E 01	4.192E-02	7.806E 01	3.946E-02
4.811E 01	3.745E 01	2.738E 01	-9.061E 02	-2.036E 03	-1.354E 03	-6.820E 02	2.194E 03	9.977E 01	5.044E-02	7.294E 01	3.687E-02
4.877E 01	2.573E 01	2.573E 01	-8.254E 02	-2.147E 03	-1.404E 03	-7.424E 02	2.277E 03	6.855E 01	3.465E-02	6.855E 01	3.465E-02
4.878E 01	2.571E 01	2.571E 01	-8.241E 02	-2.148E 03	-1.405E 03	-7.433E 02	2.278E 03	6.848E 01	3.462E-02	6.848E 01	3.462E-02
4.931E 01	2.439E 01	2.439E 01	-7.549E 02	-2.253E 03	-1.444E 03	-7.890E 02	2.345E 03	6.498E 01	3.285E-02	6.498E 01	3.285E-02
5.072E 01	1.973E 01	1.973E 01	-5.918E 02	-2.451E 03	-1.543E 03	-9.073E 02	2.522E 03	5.256E 01	2.657E-02	5.256E 01	2.657E-02
5.282E 01	2.355E 01	2.355E 01	-3.535E 02	-2.764E 03	-1.680E 03	-1.084E 03	2.789E 03	6.274E 01	3.172E-02	6.274E 01	3.172E-02
5.332E 01	1.990E 01	1.990E 01	-2.970E 02	-2.837E 03	-1.710E 03	-1.127E 03	2.852E 03	5.302E 01	2.680E-02	5.302E 01	2.680E-02
5.407E 01	1.790E 01	1.790E 01	-2.239E 02	-2.943E 03	-1.755E 03	-1.188E 03	2.948E 03	4.768E 01	2.410E-02	4.768E 01	2.410E-02
5.483E 01	1.586E 01	1.586E 01	-1.584E 02	-3.047E 03	-1.798E 03	-1.249E 03	3.046E 03	4.226E 01	2.136E-02	4.226E 01	2.136E-02
5.576E 01	1.418E 01	1.418E 01	-8.875E 01	-3.168E 03	-1.848E 03	-1.320E 03	3.164E 03	3.778E 01	1.910E-02	3.778E 01	1.910E-02
5.626E 01	1.327E 01	1.327E 01	6.518E 01	-3.227E 03	-1.870E 03	-1.357E 03	3.209E 03	3.536E 01	1.787E-02	3.536E 01	1.787E-02
5.631E 01	7.350E 00	1.317E 01	6.894E 01	-3.234E 03	-1.872E 03	-1.361E 03	3.216E 03	1.958E 01	9.899E-03	3.509E 01	1.774E-02
5.645E 01	7.350E 00	1.292E 01	7.744E 01	-3.249E 03	-1.877E 03	-1.372E 03	3.234E 03	1.958E 01	9.899E-03	3.441E 01	1.740E-02
5.653E 01	1.277E 01	1.277E 01	8.260E 01	-3.257E 03	-1.880E 03	-1.377E 03	3.245E 03	3.402E 01	1.720E-02	3.402E 01	1.720E-02
5.681E 01	1.226E 01	1.226E 01	9.894E 01	-3.287E 03	-1.890E 03	-1.397E 03	3.280E 03	3.267E 01	1.652E-02	3.267E 01	1.652E-02
5.704E 01	1.136E 01	1.136E 01	1.104E 02	-3.311E 03	-1.898E 03	-1.413E 03	3.309E 03	3.026E 01	1.530E-02	3.026E 01	1.530E-02
5.776E 01	8.460E 00	8.460E 00	1.373E 02	-3.384E 03	-1.921E 03	-1.465E 03	3.402E 03	2.254E 01	1.139E-02	2.254E 01	1.139E-02
5.878E 01	5.025E 00	5.025E 00	1.529E 02	-3.475E 03	-1.951E 03	-1.524E 03	3.532E 03	1.339E 01	6.768E-03	1.339E 01	6.768E-03
6.079E 01	1.002E 01	1.002E 01	1.547E 02	-3.640E 03	-2.004E 03	-1.636E 03	3.790E 03	2.671E 01	1.350E-02	2.671E 01	1.350E-02
6.221E 01	1.434E 01	1.434E 01	1.547E 02	-3.760E 03	-2.047E 03	-1.713E 03	3.972E 03	3.821E 01	1.932E-02	3.821E 01	1.932E-02
6.468E 01	1.753E 01	1.753E 01	1.547E 02	-3.996E 03	-2.152E 03	-1.844E 03	4.289E 03	4.670E 01	2.361E-02	4.670E 01	2.361E-02

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 6														
58.785	81.983	2797	546.8(910)	1.3011	23.329	2785											
58.785	5.025	1402	63.0(429)	1.3563	23.330	2013	2.444	4920	2.342	0.26627	25.758	0.3777	4425	20.359	171.8	0.66	0.20
COMBUSTOR	0	39	32 6														
60.795	47.202	3467	540.4(1144)	1.2678	24.000	3018											
60.795	10.025	2456	163.2(777)	1.3039	24.006	2575	1.687	4344	2.439	0.27553	25.758	0.3650	4415	18.603	171.4	0.66	0.44
COMBUSTOR	0	40	33 5														
62.215	41.446	3865	535.8(1285)	1.2438	24.432	3128											
62.215	14.344	3108	235.7(1003)	1.2750	24.456	2838	1.365	3875	2.471	0.28300	25.758	0.3553	4407	17.041	171.1	0.66	0.60
COMBUSTOR	0	41	34 4														
64.679	37.028	4089	526.6(1365)	1.2273	24.706	3178											
64.679	17.529	3543	297.4(1159)	1.2529	24.745	2987	1.134	3387	2.488	0.26825	25.758	0.3749	4394	14.118	170.6	0.66	0.70
COMBUSTOR	0	42	35 4														
65.055	34.135	4136	525.0(1381)	1.2231	24.763	3187											
65.055	18.195	3676	328.0(1207)	1.2454	24.804	3029	1.036	3139	2.496	0.24939	25.758	0.4032	4392	12.167	170.5	0.66	0.72
COMBUSTOR REGEN		43	36 21														
65.055	34.135	4329	617.2(1455)	1.2110	24.725	3247											
65.055	23.205	4047	487.4(1347)	1.2252	24.769	3155	0.808	2548	2.518	0.24939	25.758	0.4032	4437	9.877	172.3	0.66	0.72
NOZZLE AE		44	37 5														
87.291	34.135	4136	525.0(1363)	1.2231	24.763	3187											
87.291	0.956	1920	-316.3(581)	1.3149	24.826	2249	2.885	6488	2.496	0.05192	25.758	1.9371	5669	5.235	220.1	0.66	0.72
NOZZLE PO		45	38 5														
87.291	34.135	4136	525.0(1363)	1.2231	24.763	3187											
87.291	0.375	1527	-444.9(452)	1.3343	24.826	2020	3.449	6966	2.496	0.02751	25.758	3.6354	5929	2.978	230.2	0.66	0.72
NOZZLE AE REGEN		46	39 5														
87.291	34.135	4329	617.2(1455)	1.2110	24.725	3247											
87.291	1.010	2075	-264.1(633)	1.3084	24.826	2332	2.848	6641	2.518	0.05192	25.758	1.9371	5818	5.358	225.9	0.66	0.72
NOZZLE PO REGEN		47	40 9														
87.291	34.135	4329	617.2(1455)	1.2110	24.725	3247											
87.291	0.375	1634	-410.5(487)	1.3285	24.826	2085	3.439	7171	2.518	0.02646	25.758	3.7999	6106	2.949	237.1	0.66	0.72
FICTIVE COMBUSTR		67	60 0														
65.055	196.222	4804	525.0(1622)	1.1956	25.542	3344											
65.055	0.375	1264	-822.7(362)	1.3420	25.718	1811	4.534	8212	2.373	0.04058	25.758	2.4783	6813	5.179	264.5	0.66	1.00
FICTIVE NOZZLE		68	61 0														
87.291	27.477	4085	503.3(1362)	1.2243	24.767	3168											
87.291	1.054	2037	-277.0(620)	1.3100	24.826	2312	2.703	6248	2.508	0.05192	25.758	1.9371	5525	5.041	214.5	0.66	0.72

READING = 0071 BLOCK = 198 TIME = 285.638 MACH 6.0 PI = 742.499 TI = 2902.1

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	H/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 3														
47.310	84.315	2583	592.7(760)	1.3107	25.472	2570											
47.310	30.063	2011	408.7(577)	1.3304	25.472	2285	1.328	3034	2.141	0.74777	25.505	0.1332	3431	35.259	134.5	0.34	0.04
COMBUSTOR	0	20	13 2														
47.335	84.096	2588	592.5(761)	1.3104	25.477	2572											
47.335	30.214	2019	409.4(579)	1.3300	25.477	2289	1.322	3027	2.142	0.74694	25.505	0.1333	3431	35.136	134.5	0.34	0.04
COMBUSTOR	0	21	14 4														
48.110	77.404	2751	587.3(812)	1.3028	25.657	2635											
48.110	32.414	2257	419.6(646)	1.3201	25.658	2392	1.211	2896	2.164	0.69677	25.505	0.1429	3463	31.363	136.5	0.34	0.15
COMBUSTOR	0	22	15 17														
48.775	74.779	2392	598.4(774)	1.3213	22.639	2623											
48.775	25.730	1834	403.2(579)	1.3415	22.839	2314	1.350	3125	2.310	0.64797	25.758	0.1552	3525	31.471	136.8	0.66	0.01
COMBUSTOR	0	23	16 2														
48.785	74.713	2394	598.3(775)	1.3212	22.840	2624											
48.785	25.706	1836	403.0(580)	1.3414	22.840	2315	1.350	3126	2.311	0.64713	25.758	0.1554	3526	31.441	136.9	0.66	0.01
COMBUSTOR	0	24	17 4														
49.315	71.295	2483	595.0(805)	1.3170	22.926	2663											
49.315	24.392	1906	392.0(603)	1.3376	22.926	2351	1.356	3187	2.325	0.60521	25.758	0.1662	3590	29.977	139.4	0.66	0.05
COMBUSTOR	0	25	18 4														
50.725	65.612	2633	586.6(856)	1.3099	23.080	2726											
50.725	19.731	1965	350.1(621)	1.3334	23.080	2376	1.448	3440	2.349	0.51581	25.758	0.1950	3739	27.573	145.2	0.66	0.11
COMBUSTOR	0	26	19 5														
52.825	52.533	3224	574.4(1060)	1.2816	23.667	2946											
52.825	23.550	2691	375.6(866)	1.3000	23.669	2711	1.164	3154	2.418	0.42277	25.758	0.2379	3960	20.723	153.7	0.66	0.32
COMBUSTOR	0	27	20 2														
53.325	52.546	3216	571.6(1057)	1.2820	23.666	2943											
53.325	19.902	2581	336.0(827)	1.3038	23.668	2659	1.291	3433	2.417	0.40549	25.758	0.2480	4013	21.633	155.8	0.66	0.32
COMBUSTOR	0	28	21 4														
54.075	51.356	3274	567.5(1078)	1.2789	23.734	2962											
54.075	17.896	2582	310.0(826)	1.3029	23.737	2654	1.352	3590	2.423	0.38223	25.758	0.2631	4080	21.322	158.4	0.66	0.35
COMBUSTOR	0	29	22 3														
54.835	50.723	3297	563.5(1085)	1.2776	23.767	2968											
54.835	15.862	2537	281.2(809)	1.3040	23.770	2630	1.429	3758	2.425	0.36145	25.758	0.2782	4139	21.110	160.7	0.66	0.36
COMBUSTOR	0	30	23 3														
55.760	49.726	3334	558.8(1098)	1.2755	23.816	2979											
55.760	14.180	2514	254.2(800)	1.3042	23.820	2616	1.492	3904	2.428	0.33938	25.758	0.2963	4202	20.589	163.1	0.66	0.38
COMBUSTOR	0	31	24 5														
56.260	39.871	3724	556.4(1236)	1.2532	24.224	3095											
56.260	13.272	2951	256.2(950)	1.2835	24.239	2787	1.391	3876	2.470	0.27341	25.758	0.3678	4353	16.467	169.0	0.66	0.52
COMBUSTOR	0	32	25 5														
56.315	44.667	3426	556.2(1130)	1.2705	23.916	3008											
56.315	10.261	2465	198.5(782)	1.3046	23.921	2586	1.636	4230	2.445	0.27254	25.758	0.3690	4356	17.918	169.1	0.66	0.41
COMBUSTOR	0	33	26 3														
56.455	44.615	3430	555.6(1132)	1.2702	23.921	3009											
56.455	10.134	2462	195.3(780)	1.3046	23.927	2584	1.644	4246	2.443	0.27059	25.758	0.3717	4364	17.855	169.4	0.66	0.41
COMBUSTOR	0	34	27 5														
56.535	40.697	3702	555.3(1228)	1.2545	24.204	3089											
56.535	12.772	2893	242.6(929)	1.2858	24.219	2764	1.431	3955	2.467	0.27362	25.758	0.3675	4369	16.818	169.6	0.66	0.52
COMBUSTOR	0	35	28 5														
56.815	41.387	3679	554.1(1220)	1.2559	24.184	3082											
56.815	12.262	2837	229.8(909)	1.2881	24.197	2740	1.470	4028	2.464	0.27271	25.758	0.3688	4383	17.073	170.2	0.66	0.51
COMBUSTOR	0	36	29 4														
57.041	42.912	3602	553.2(1193)	1.2605	24.105	3060											
57.041	11.358	2699	209.7(861)	1.2940	24.116	2683	1.545	4146	2.457	0.27230	25.758	0.3693	4393	17.544	170.6	0.66	0.48
COMBUSTOR	0	37	30 5														
57.765	50.490	3295	550.3(1084)	1.2772	23.800	2965											
57.765	8.460	2188	145.6(687)	1.3160	23.803	2453	1.835	4500	2.423	0.26797	25.758	0.3753	4416	18.741	171.4	0.66	0.37

3/03/75

READING = 0071 BLOCK = 198 TIME = 285.638 MACH 6.0 PT = 742.499 TT = 2902.1

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	742.499	2902	640.7(	767)	1.2963	28.898	2544											
0.000	0.375	386	-36.2(	93)	1.3986	28.897	964	6.035	5820	1.818	0.10570	25.242	0.9323	4656	9.561	184.5		
SPIKE TIP NS		2	0	5														
0.600	18.100	2902	640.7(	767)	1.2963	28.897	2544											
0.600	16.436	2839	621.7(	748)	1.2983	28.897	2518	0.388	976	2.074	0.10570	25.242	0.9323	4691	1.604	185.8		
WIND TUNNEL		3	0	0														
0.000	742.499	2902	640.7(	767)	1.2963	28.898	2544											
0.000	0.380	388	-35.9(	93)	1.3986	28.897	966	6.022	5819	1.818	0.10668	25.473	0.9323	4698	9.646	184.4		
SPIKE TIP NS		4	0	0														
0.600	18.100	2902	640.7(	767)	1.2963	28.897	2544											
0.600	16.402	2837	621.3(	748)	1.2984	28.897	2518	0.392	987	2.074	0.10668	25.473	0.9323	4698	1.636	184.4		
INLET THROAT		5	0	4														
40.400	196.222	2795	608.6(	735)	1.2997	28.897	2500											
40.400	17.430	1548	255.4(	384)	1.3458	28.897	1893	2.220	4204	1.898	0.88501	25.242	0.1114	3795	57.820	150.4		
INLET UPNRSK		6	0	3														
40.400	196.222	2795	608.6(	735)	1.2997	28.897	2500											
40.400	14.862	1486	238.7(	368)	1.3493	28.897	1857	2.316	4302	1.898	0.80456	25.242	0.1225	3841	53.787	152.2		
INLET DNNRSK		7	0	4														
40.400	107.593	2795	608.6(	735)	1.2998	28.897	2500											
40.400	90.524	2685	576.0(	703)	1.3032	28.897	2454	0.520	1276	1.940	0.80456	25.242	0.1225	3841	15.956	152.2		
COMBUSTOR	0	8	1	4														
40.410	195.820	2795	608.5(	735)	1.2997	28.897	2500											
40.410	17.450	1550	255.7(	385)	1.3458	28.897	1894	2.218	4202	1.898	0.88490	25.242	0.1114	3794	57.784	150.3		
COMBUSTOR	0	9	2	4														
41.310	159.509	2783	605.0(	732)	1.3001	28.897	2495											
41.310	20.253	1688	293.1(	422)	1.3388	28.897	1972	2.004	3951	1.911	0.88648	25.242	0.1112	3676	54.432	145.7		
COMBUSTOR	0	10	3	4														
41.375	157.355	2782	604.7(	732)	1.3002	28.897	2495											
41.375	20.519	1699	296.0(	425)	1.3383	28.897	1978	1.987	3931	1.912	0.88782	25.242	0.1110	3667	54.232	145.3		
COMBUSTOR	0	11	4	4														
41.500	152.908	2780	604.1(	731)	1.3002	28.897	2494											
41.500	20.989	1720	301.6(	431)	1.3373	28.897	1989	1.956	3891	1.914	0.88803	25.242	0.1110	3649	53.692	144.6		
COMBUSTOR	0	12	5	5														
42.460	132.007	2762	598.9(	726)	1.3008	28.897	2486											
42.460	23.247	1818	328.6(	458)	1.3332	28.897	2042	1.801	3677	1.922	0.87931	25.242	0.1121	3552	50.252	140.7		
COMBUSTOR	0	13	6	3														
44.095	116.921	2727	588.4(	716)	1.3019	28.897	2471											
44.095	24.073	1864	341.3(	470)	1.3314	28.897	2066	1.701	3516	1.927	0.84909	25.242	0.1161	3474	46.391	137.6		
COMBUSTOR	0	14	7	3														
44.310	115.613	2722	586.9(	714)	1.3021	28.897	2469											
44.310	24.224	1869	342.6(	472)	1.3312	28.897	2069	1.690	3496	1.927	0.84761	25.242	0.1163	3464	46.055	137.2		
COMBUSTOR	0	15	8	3														
44.800	112.889	2710	583.5(	711)	1.3024	28.897	2464											
44.800	24.527	1877	344.9(	474)	1.3309	28.897	2073	1.667	3455	1.927	0.84431	25.242	0.1167	3444	45.334	136.4		
COMBUSTOR	0	16	9	3														
44.810	112.840	2710	583.4(	711)	1.3024	28.897	2464											
44.810	24.536	1877	344.9(	474)	1.3309	28.897	2073	1.666	3454	1.927	0.84431	25.242	0.1167	3443	45.323	136.4		
COMBUSTOR	0	17	10	21														
46.250	83.044	2660	600.2(	784)	1.3075	25.526	2603											
46.250	27.091	2029	396.7(	582)	1.3291	25.526	2292	1.392	3190	2.151	0.80415	25.505	0.1238	3388	39.872	132.9	0.34	0.07
COMBUSTOR	0	18	11	21														
46.260	87.283	2554	600.1(	751)	1.3123	25.421	2560											
46.260	27.119	1919	396.9(	549)	1.3344	25.421	2238	1.425	3189	2.136	0.80365	25.505	0.1239	3388	39.826	132.9	0.34	0.01

Reading 71

t = 285.64 sec.

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	839.	(LBF)
MEASURED THRUST	908.	(LBF)
CALCULATED SPECIFIC IMPULSE	1630.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1763.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.3424	
MEASURED THRUST COEFFICIENT	0.3705	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	5669.	(LBF)
NET THRUST	992.	(LBF)
SPECIFIC IMPULSE	1926.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.4048	

MOMENTUM AND FORCES

INLET FRICTION DRAG	128.7	(LBF)
INLET MOMENTUM CHANGE	-880.2	(LBF)
COMBUSTOR FRICTION DRAG	239.5	(LBF)
COMBUSTOR STRUT DRAG	-5.10	(LBF)
COMBUSTOR MOMENTUM CHANGE	586.	(LBF)
NOZZLE FRICTION DRAG	39.39	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1134.	(LBF)
NOZZLE PRESSURE INTEGRAL	1173.	(LBF)
EXTERNAL FRICTION DRAG	65.35	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1001.	(LBF)
TOTAL EXTERNAL DRAG	-1066.	(LBF)
TOTAL STRUT DRAG	-5.10	(LBF)
CAVITY FORCE	-1150.	(LBF)
CALCULATED LOAD CELL FORCE	-1385.	(LBF)
MEASURED LOAD CELL FORCE	-1315.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	-167.2, -120.2,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.5148	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.199	(IN)
NOZZLE SHROUD TRAILING EDGE	73.539	(IN)
NOZZLE PLUG TRAILING EDGE	87.291	(IN)
STRUT LEADING EDGE	56.455	(IN)
STRUT TRAILING EDGE	65.055	(IN)
COMBUSTOR EXIT	65.055	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.9321	
ADDITIVE DRAG COEFFICIENT	0.0053	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1427	
DELTA PT2	0.1161	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.2648	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1450	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8740	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9003	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.8979	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8619	
ENTHALPY AT P0 - SUPERSONIC	0.67	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	25.05	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0204	
EQUIVALENCE RATIO	0.660	
COMBUSTOR EFFICIENCY	0.711	
TOTAL PRESSURE RATIO	0.1732	
COMBUSTOR EFFECTIVENESS	0.7019	
INJECTOR DISCHARGE COEFFICIENTS	0.8188,	0.6687,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9755
NOZZLE COEFFICIENT - CT	0.9015
PROCESS EFFICIENCY	0.9730
KINETIC ENERGY EFFICIENCY	0.9464

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.300	
1C	44.300	
2A	48.775	D
2C	46.250	E
3A	54.065	
3B	56.250	
4	44.800	

READING = 0071 BLOCK = 197 TIME = 284.738 MACH 6.0 PT = 742.499 TT = 2905.7

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.287E 02	1.287E 02	2.374E-03	4.450E-02
4.041E 01	1.622E-01	1.288E 02	2.375E-03	4.452E-02
4.131E 01	1.455E 01	1.434E 02	2.496E-03	4.757E-02
4.137E 01	1.052E 00	1.444E 02	2.504E-03	4.786E-02
4.150E 01	2.028E 00	1.465E 02	2.522E-03	4.831E-02
4.246E 01	1.530E 01	1.617E 02	2.601E-03	4.980E-02
4.409E 01	2.511E 01	1.869E 02	2.647E-03	4.916E-02
4.431E 01	3.203E 00	1.901E 02	2.652E-03	4.919E-02
4.480E 01	7.268E 00	1.973E 02	2.662E-03	4.923E-02
4.481E 01	1.433E-01	1.975E 02	2.662E-03	4.923E-02
4.625E 01	2.221E 01	2.197E 02	3.217E-03	4.513E-02
4.626E 01	1.515E-01	2.198E 02	2.852E-03	5.144E-02
4.731E 01	1.384E 01	2.337E 02	2.780E-03	5.430E-02
4.733E 01	3.093E-01	2.340E 02	2.801E-03	5.400E-02
4.811E 01	9.043E 00	2.430E 02	2.807E-03	5.475E-02
4.877E 01	7.897E 00	2.509E 02	3.228E-03	4.298E-02
4.878E 01	1.178E-01	2.510E 02	2.749E-03	5.113E-02
4.931E 01	5.567E 00	2.566E 02	2.713E-03	4.961E-02
5.072E 01	1.370E 01	2.703E 02	2.660E-03	4.260E-02
5.282E 01	1.733E 01	2.876E 02	2.733E-03	4.292E-02
5.332E 01	3.860E 00	2.915E 02	2.981E-03	3.543E-02
5.407E 01	6.105E 00	2.976E 02	2.928E-03	3.355E-02
5.483E 01	6.058E 00	3.037E 02	2.912E-03	3.103E-02
5.576E 01	7.201E 00	3.109E 02	2.880E-03	2.901E-02
5.626E 01	2.389E 00	3.133E 02	2.849E-03	2.614E-02
5.631E 01	3.538E-01	3.136E 02	2.996E-03	2.142E-02
5.645E 01	9.270E-01	3.145E 02	2.843E-03	2.252E-02
5.653E 01	5.359E-01	3.151E 02	3.203E-03	2.263E-02
5.681E 01	1.868E 00	3.169E 02	2.985E-03	2.383E-02
5.704E 01	1.480E 00	3.184E 02	2.957E-03	2.299E-02
5.776E 01	4.885E 00	3.233E 02	2.872E-03	1.961E-02
5.878E 01	7.054E 00	3.304E 02	2.664E-03	1.458E-02
6.079E 01	1.266E 01	3.430E 02	2.385E-03	2.555E-02
6.221E 01	8.496E 00	3.515E 02	2.852E-03	2.704E-02
6.468E 01	1.464E 01	3.662E 02	3.101E-03	2.665E-02
6.505E 01	2.011E 00	3.682E 02	3.257E-03	2.484E-02
6.509F 01	2.053E-01	3.684E 02	3.357E-03	2.517E-02
6.529E 01	1.043E 00	3.694E 02	3.332E-03	2.509E-02
6.695E 01	9.141E 00	3.786E 02	3.169E-03	1.901E-02
6.762E 01	3.502E 00	3.821E 02	3.136E-03	1.724E-02
6.839E 01	3.745E 00	3.858E 02	3.070E-03	1.368E-02
6.911E 01	3.067E 00	3.889E 02	3.022E-03	1.129E-02
6.972E 01	2.305E 00	3.912E 02	2.989E-03	9.740E-03
7.067E 01	3.097E 00	3.943E 02	2.937E-03	7.594E-03
7.110E 01	1.238E 00	3.955E 02	2.918E-03	6.945E-03
7.263E 01	4.042E 00	3.996E 02	2.889E-03	6.144E-03
7.278E 01	3.531E-01	3.999E 02	2.878E-03	5.840E-03
7.353E 01	1.475E 00	4.014E 02	2.799E-03	4.043E-03
7.354E 01	2.410E-03	4.014E 02	2.799E-03	4.032E-03
7.486E 01	8.516E-01	4.022E 02	2.839E-03	5.095E-03
7.771E 01	1.960E 00	4.042E 02	2.877E-03	6.558E-03
8.161E 01	2.087E 00	4.065E 02	2.806E-03	5.059E-03
8.442E 01	8.928E-01	4.072E 02	2.750E-03	4.055E-03
8.728E 01	3.807E-01	4.076E 02	2.795E-03	5.367E-03
8.729E 01	0.000	4.076E 02	2.795E-03	5.370E-03

READING = 0071 BLOCK = 197 TIME = 284.738 MACH 6.0 PT = 742.499 T1 = 2905.7

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OB/PT0
6.505E 01	1.837E 01	1.796E 01	1.430E 02	-4.011E 03	-2.191E 03	-1.821E 03	4.337E 03	4.890E 01	2.475E-02	4.780E 01	2.419E-02
6.509E 01	1.837E 01	1.801E 01	1.430E 02	-4.015E 03	-2.193E 03	-1.823E 03	4.342E 03	4.890E 01	2.475E-02	4.794E 01	2.426E-02
6.529E 01	1.748E 01	1.827E 01	1.430E 02	-4.036E 03	-2.203E 03	-1.833E 03	4.368E 03	4.651E 01	2.354E-02	4.863E 01	2.461E-02
6.695E 01	1.005E 01	8.290E 00	2.929E 02	-4.185E 03	-2.276E 03	-1.908E 03	4.583E 03	2.674E 01	1.354E-02	2.206E 01	1.116E-02
6.762E 01	7.454E 00	8.025E 00	4.640E 02	-4.234E 03	-2.299E 03	-1.936E 03	4.665E 03	1.983E 01	1.004E-02	2.135E 01	1.081E-02
6.839E 01	4.470E 00	6.196E 00	6.438E 02	-4.288E 03	-2.320E 03	-1.968E 03	4.760E 03	1.189E 01	6.020E-03	1.649E 01	8.344E-03
6.911E 01	3.515E 00	4.485E 00	7.635E 02	-4.336E 03	-2.336E 03	-2.000E 03	4.848E 03	9.352E 00	4.733E-03	1.193E 01	6.040E-03
6.972E 01	2.705E 00	3.756E 00	8.413E 02	-4.373E 03	-2.346E 03	-2.027E 03	4.922E 03	7.198E 00	3.643E-03	9.994E 00	5.058E-03
7.067E 01	1.937E 00	2.620E 00	9.279E 02	-4.420E 03	-2.360E 03	-2.060E 03	5.036E 03	5.156E 00	2.609E-03	6.972E 00	3.529E-03
7.110E 01	1.590E 00	2.443E 00	9.578E 02	-4.438E 03	-2.365E 03	-2.073E 03	5.088E 03	4.231E 00	2.141E-03	6.502E 00	3.291E-03
7.263E 01	1.608E 00	1.815E 00	1.046E 03	-4.489E 03	-2.379E 03	-2.109E 03	5.273E 03	4.279E 00	2.166E-03	4.830E 00	2.444E-03
7.278E 01	1.610E 00	1.588E 00	1.053E 03	-4.493E 03	-2.381E 03	-2.112E 03	5.290E 03	4.284E 00	2.168E-03	4.227E 00	2.139E-03
7.353E 01	1.513E 00	4.550E-01	1.094E 03	-4.517E 03	-2.387E 03	-2.130E 03	5.374E 03	4.025E 00	2.037E-03	1.211E 00	6.128E-04
7.354E 01	1.512E 00	4.489E-01	1.095E 03	-4.517E 03	-2.387E 03	-2.130E 03	5.375E 03	4.024E 00	2.037E-03	1.195E 00	6.046E-04
7.486E 01	1.340E 00	0.000	1.126E 03	-4.563E 03	-2.397E 03	-2.166E 03	5.427E 03	3.566E 00	1.805E-03	0.000	0.000
7.771E 01	1.895E 00	0.000	1.190E 03	-4.647E 03	-2.415E 03	-2.232E 03	5.525E 03	5.043E 00	2.552E-03	0.000	0.000
8.161E 01	1.350E 00	0.000	1.260E 03	-4.667E 03	-2.434E 03	-2.232E 03	5.630E 03	3.592E 00	1.818E-03	0.000	0.000
8.442E 01	1.015E 00	0.000	1.286E 03	-4.684E 03	-2.452E 03	-2.232E 03	5.684E 03	2.701E 00	1.367E-03	0.000	0.000
8.728E 01	1.480E 00	0.000	1.316E 03	-4.712E 03	-2.480E 03	-2.232E 03	5.707E 03	3.938E 00	1.993E-03	0.000	0.000
8.729E 01	1.481E 00	0.000	1.316E 03	-4.712E 03	-2.480E 03	-2.232E 03	5.707E 03	3.941E 00	1.995E-03	0.000	0.000

READING = 0071 BLOCK = 197 TIME = 284.738 MACH 6.0 PT = 742.499 TT = 2905.7

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.040E 00	0.000	-4.405E-01	0.000	0.000	0.000	2.470E-02	2.767E 00	1.401E-03	0.000	0.000
1.836E 01	1.040E 00	0.000	-3.463E 01	0.000	0.000	0.000	1.634E 02	2.767E 00	1.401E-03	0.000	0.000
3.070E 01	2.975E 00	0.000	-1.974E 02	0.000	0.000	0.000	5.053E 02	7.917E 00	4.007E-03	0.000	0.000
3.508E 01	3.826E 00	0.000	-4.178E 02	0.000	0.000	0.000	6.804E 02	1.018E 01	5.153E-03	0.000	0.000
3.519E 01	4.142E 00	5.552E 00	-4.821E 02	0.000	0.000	0.000	6.854E 02	1.102E 01	5.578E-03	1.478E 01	7.478E-03
3.520E 01	4.158E 00	5.523E 00	-4.822E 02	0.000	0.000	0.000	6.857E 02	1.107E 01	5.601E-03	1.470E 01	7.439E-03
3.555E 01	5.140E 00	3.810E 00	-4.948E 02	0.000	0.000	0.000	7.209E 02	1.368E 01	6.923E-03	1.014E 01	5.132E-03
3.586E 01	5.010E 00	2.275E 00	-5.160E 02	-5.492E 02	-5.492E 02	0.000	7.529E 02	1.333E 01	6.748E-03	6.054E 00	3.064E-03
3.606E 01	4.930E 00	3.430E 00	-5.296E 02	-5.553E 02	-5.553E 02	0.000	7.729E 02	1.312E 01	6.640E-03	9.126E 00	4.619E-03
3.648E 01	4.140E 00	5.914E 00	-5.485E 02	-5.689E 02	-5.689E 02	0.000	8.164E 02	1.102E 01	5.576E-03	1.574E 01	7.966E-03
3.701E 01	5.115E 00	9.050E 00	-5.694E 02	-6.043E 02	-5.868E 02	-1.752E 01	8.726E 02	1.361E 01	6.889E-03	2.408E 01	1.219E-02
3.732E 01	4.857E 00	1.091E 01	-5.806E 02	-6.212E 02	-5.978E 02	-2.339E 01	9.063E 02	1.293E 01	6.542E-03	2.904E 01	1.470E-02
3.803E 01	4.280E 00	1.452E 01	-5.943E 02	-6.601E 02	-6.239E 02	-3.624E 01	9.834E 02	1.139E 01	5.764E-03	3.863E 01	1.955E-02
3.834E 01	8.020E 00	1.612E 01	-5.993E 02	-6.783E 02	-6.364E 02	-4.193E 01	1.018E 03	2.134E 01	1.080E-02	4.291E 01	2.172E-02
3.875E 01	1.283E 01	1.768E 01	-6.206E 02	-7.030E 02	-6.538E 02	-4.921E 01	1.064E 03	3.415E 01	1.728E-02	4.704E 01	2.381E-02
3.881E 01	1.360E 01	1.792E 01	-6.244E 02	-7.070E 02	-6.567E 02	-5.037E 01	1.072E 03	3.620E 01	1.832E-02	4.770E 01	2.414E-02
3.901E 01	1.592E 01	1.775E 01	-6.355E 02	-7.196E 02	-6.657E 02	-5.385E 01	1.094E 03	4.236E 01	2.144E-02	4.724E 01	2.391E-02
3.932E 01	1.870E 01	1.747E 01	-6.565E 02	-7.407E 02	-6.812E 02	-5.944E 01	1.130E 03	4.977E 01	2.519E-02	4.650E 01	2.354E-02
3.950E 01	2.025E 01	1.312E 01	-6.696E 02	-7.528E 02	-6.903E 02	-6.253E 01	1.150E 03	5.389E 01	2.727E-02	3.492E 01	1.767E-02
3.981E 01	1.805E 01	5.300E 00	-6.974E 02	-7.755E 02	-7.075E 02	-6.799E 01	1.187E 03	4.803E 01	2.431E-02	1.410E 01	7.138E-03
4.000E 01	1.676E 01	5.068E 00	-7.146E 02	-7.894E 02	-7.183E 02	-7.115E 01	1.209E 03	4.459E 01	2.257E-02	1.349E 01	6.825E-03
4.040E 01	2.003E 01	4.566E 00	-7.516E 02	-8.208E 02	-7.426E 02	-7.818E 01	1.256E 03	5.330E 01	2.697E-02	1.215E 01	6.150E-03
4.041E 01	2.011E 01	4.554E 00	-7.524E 02	-8.216E 02	-7.433E 02	-7.836E 01	1.257E 03	5.351E 01	2.708E-02	1.212E 01	6.133E-03
4.131E 01	2.747E 01	3.425E 00	-8.557E 02	-9.102E 02	-8.045E 02	-1.057E 02	1.363E 03	7.310E 01	3.700E-02	9.115E 00	4.613E-03
4.137E 01	2.800E 01	3.344E 00	-8.640E 02	-9.178E 02	-8.093E 02	-1.085E 02	1.371E 03	7.451E 01	3.771E-02	8.898E 00	4.503E-03
4.150E 01	2.902E 01	3.947E 00	-8.802E 02	-9.328E 02	-8.187E 02	-1.141E 02	1.386E 03	7.724E 01	3.909E-02	1.050E 01	5.316E-03
4.246E 01	2.085E 01	8.576E 00	-9.614E 02	-1.065E 03	-8.956E 02	-1.694E 02	1.501E 03	5.548E 01	2.808E-02	2.282E 01	1.155E-02
4.409E 01	2.504E 01	1.646E 01	-1.015E 03	-1.350E 03	-1.035E 03	-2.951E 02	1.699E 03	6.664E 01	3.373E-02	4.380E 01	2.217E-02
4.431E 01	2.559E 01	1.727E 01	-1.021E 03	-1.368E 03	-1.054E 03	-3.135E 02	1.725E 03	6.811E 01	3.447E-02	4.594E 01	2.325E-02
4.480E 01	2.685E 01	1.910E 01	-1.034E 03	-1.453E 03	-1.097E 03	-3.567E 02	1.785E 03	7.145E 01	3.616E-02	5.083E 01	2.573E-02
4.481E 01	2.686E 01	1.914E 01	-1.034E 03	-1.455E 03	-1.098E 03	-3.576E 02	1.786E 03	7.149E 01	3.618E-02	5.093E 01	2.578E-02
4.625E 01	2.901E 01	2.454E 01	-1.025E 03	-1.711E 03	-1.220E 03	-4.913E 02	1.963E 03	7.718E 01	3.906E-02	6.529E 01	3.304E-02
4.626E 01	2.902E 01	2.457E 01	-1.024E 03	-1.713E 03	-1.221E 03	-4.922E 02	1.964E 03	7.722E 01	3.908E-02	6.539E 01	3.309E-02
4.731E 01	3.058E 01	2.851E 01	-9.709E 02	-1.899E 03	-1.306E 03	-5.928E 02	2.094E 03	8.138E 01	4.119E-02	7.586E 01	3.839E-02
4.733E 01	3.079E 01	2.860E 01	-9.700E 02	-1.903E 03	-1.308E 03	-5.952E 02	2.097E 03	8.193E 01	4.147E-02	7.611E 01	3.852E-02
4.811E 01	3.730E 01	2.699E 01	-9.114E 02	-2.036E 03	-1.369E 03	-6.676E 02	2.194E 03	9.926E 01	5.024E-02	7.182E 01	3.635E-02
4.877E 01	2.561E 01	2.561E 01	-8.316E 02	-2.145E 03	-1.419E 03	-7.265E 02	2.277E 03	6.815E 01	3.449E-02	6.815E 01	3.449E-02
4.878E 01	2.559E 01	2.559E 01	-8.302E 02	-2.147E 03	-1.420E 03	-7.274E 02	2.278E 03	6.809E 01	3.446E-02	6.809E 01	3.446E-02
4.931E 01	2.449E 01	2.449E 01	-7.611E 02	-2.251E 03	-1.459E 03	-7.721E 02	2.345E 03	6.516E 01	3.298E-02	6.516E 01	3.298E-02
5.072E 01	1.962E 01	1.962E 01	-5.980E 02	-2.447E 03	-1.559E 03	-8.802E 02	2.522E 03	5.221E 01	2.642E-02	5.221E 01	2.642E-02
5.282E 01	2.355E 01	2.355E 01	-3.604E 02	-2.758E 03	-1.697E 03	-1.062E 03	2.789E 03	6.267E 01	3.172E-02	6.267E 01	3.172E-02
5.332E 01	1.965E 01	1.965E 01	-3.042E 02	-2.850E 03	-1.727E 03	-1.103E 03	2.852E 03	5.230E 01	2.647E-02	5.230E 01	2.647E-02
5.407E 01	1.762E 01	1.762E 01	-2.321E 02	-2.955E 03	-1.772E 03	-1.163E 03	2.948E 03	4.689E 01	2.375E-02	4.689E 01	2.373E-02
5.483E 01	1.556E 01	1.556E 01	-1.678E 02	-3.057E 03	-1.815E 03	-1.222E 03	3.046E 03	4.141E 01	2.096E-02	4.141E 01	2.096E-02
5.576E 01	1.400E 01	1.400E 01	-9.920E 01	-3.157E 03	-1.866E 03	-1.291E 03	3.164E 03	3.726E 01	1.886E-02	3.726E 01	1.886E-02
5.626E 01	1.316E 01	1.316E 01	5.377E 01	-3.215E 03	-1.888E 03	-1.327E 03	3.209E 03	3.502E 01	1.772E-02	3.502E 01	1.772E-02
5.631E 01	7.312E 00	1.307E 01	5.750E 01	-3.221E 03	-1.890E 03	-1.331E 03	3.216E 03	1.946E 01	9.848E-03	3.477E 01	1.760E-02
5.645E 01	7.312E 00	1.283E 01	6.593E 01	-3.236E 03	-1.895E 03	-1.341E 03	3.234E 03	1.946E 01	9.848E-03	3.415E 01	1.728E-02
5.653E 01	1.270E 01	1.270E 01	7.106E 01	-3.245E 03	-1.898E 03	-1.347E 03	3.245E 03	3.379E 01	1.710E-02	3.379E 01	1.710E-02
5.681E 01	1.222E 01	1.222E 01	8.733E 01	-3.274E 03	-1.908E 03	-1.366E 03	3.280E 03	3.253E 01	1.646E-02	3.253E 01	1.646E-02
5.704E 01	1.133E 01	1.133E 01	9.879E 01	-3.297E 03	-1.916E 03	-1.381E 03	3.309E 03	3.015E 01	1.526E-02	3.015E 01	1.526E-02
5.776E 01	8.460E 00	8.460E 00	1.256E 02	-3.369E 03	-1.939E 03	-1.430E 03	3.402E 03	2.251E 01	1.139E-02	2.251E 01	1.139E-02
5.878E 01	5.025E 00	5.025E 00	1.412E 02	-3.458E 03	-1.969E 03	-1.488E 03	3.532E 03	1.337E 01	6.768E-03	1.337E 01	6.768E-03
6.079E 01	9.950E 00	9.950E 00	1.430E 02	-3.619E 03	-2.022E 03	-1.596E 03	3.790E 03	2.648E 01	1.340E-02	2.648E 01	1.340E-02
6.221E 01	1.426E 01	1.426E 01	1.430E 02	-3.737E 03	-2.065E 03	-1.672E 03	3.972E 03	3.794E 01	1.920E-02	3.794E 01	1.920E-02
6.468E 01	1.747E 01	1.747E 01	1.430E 02	-3.971E 03	-2.171E 03	-1.800E 03	4.289E 03	4.649E 01	2.353E-02	4.649E 01	2.353E-02

READING = 0071 BLOCK = 197 TIME = 284.738 MACH 6.0 PT = 742.499 TT = 2905.7

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 6														
58.785	81.527	2789	548.5(907)	1.3015	23.528	2781											
58.785	5.025	1399	66.8(428)	1.3566	23.528	2011	2.441	4909	2.341	0.26618	25.749	0.3777	4415	20.308	171.5	0.66	0.19
COMBUSTOR	0	39	32 6														
60.795	47.631	3448	542.2(1137)	1.2689	23.985	3012											
60.795	9.950	2435	165.4(770)	1.3049	23.992	2566	1.692	4342	2.437	0.27544	25.749	0.3650	4405	18.587	171.1	0.66	0.43
COMBUSTOR	0	40	33 5														
62.215	41.394	3846	537.6(1278)	1.2451	24.417	3123											
62.215	14.256	3087	237.7(996)	1.2761	24.439	2831	1.368	3874	2.469	0.28291	25.749	0.3553	4398	17.031	170.8	0.66	0.59
COMBUSTOR	0	41	34 4														
64.679	36.943	4073	528.6(1358)	1.2285	24.693	3174											
64.679	17.471	3526	299.9(1153)	1.2540	24.730	2982	1.134	3382	2.487	0.26817	25.749	0.3749	4384	14.096	170.3	0.66	0.69
COMBUSTOR	0	42	35 4														
65.055	34.053	4120	527.0(1375)	1.2243	24.750	3183											
65.055	18.168	3661	331.0(1202)	1.2465	24.790	3025	1.035	3132	2.495	0.24931	25.749	0.4032	4383	12.133	170.2	0.66	0.71
COMBUSTOR REGEN		43	36 21														
65.055	34.053	4324	623.8(1453)	1.2116	24.711	3246											
65.055	19.825	3928	444.5(1302)	1.2316	24.767	3117	0.961	2995	2.518	0.24931	25.749	0.4032	4445	11.605	172.6	0.66	0.71
NOZZLE AE		44	37 5														
87.291	34.053	4120	527.0(1356)	1.2243	24.750	3183											
87.291	0.952	1908	-311.0(577)	1.3157	24.810	2243	2.887	6475	2.495	0.05190	25.749	1.9371	5655	5.222	219.6	0.66	0.71
NOZZLE PO		45	38 5														
87.291	34.053	4120	527.0(1356)	1.2243	24.750	3183											
87.291	0.376	1519	-438.1(450)	1.3350	24.810	2016	3.448	6949	2.495	0.02761	25.749	3.6413	5912	2.982	229.6	0.66	0.71
NOZZLE AE REGEN		46	39 5														
87.291	34.053	4324	623.8(1453)	1.2116	24.711	3246											
87.291	1.009	2071	-256.2(631)	1.3089	24.810	2330	2.848	6636	2.518	0.05190	25.749	1.9371	5811	5.352	225.7	0.66	0.71
NOZZLE PO REGEN		47	40 5														
87.291	34.053	4324	623.8(1453)	1.2116	24.711	3246											
87.291	0.376	1631	-402.0(486)	1.3289	24.810	2084	3.438	7165	2.518	0.02650	25.749	3.7931	6099	2.951	236.9	0.66	0.71
FICTIVE COMBUSTR		67	60 0														
65.055	196.619	4804	527.0(1622)	1.1956	25.548	3344											
65.055	0.376	1264	-820.7(361)	1.3421	25.724	1811	4.535	8212	2.372	0.04064	25.749	2.4737	6810	5.187	264.5	0.66	1.00
FICTIVE NOZZLE		68	61 0														
87.291	28.149	4057	499.7(1351)	1.2265	24.756	3161											
87.291	1.031	1995	-281.7(606)	1.3120	24.810	2290	2.730	6253	2.504	0.05190	25.749	1.9371	5516	5.043	214.2	0.66	0.71

READING = 0071 BLOCK = 197 TIME = 284.738 MACH 6.0 PT = 742.499 TT = 2905.7

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 3														
47.310	84.678	2569	593.8(756)	1.3114	25.449	2565											
47.310	29.544	1988	407.3(570)	1.3314	25.449	2274	1.343	3055	2.140	0.74757	25.498	0.1332	3428	35.488	134.5	0.34	0.03
COMBUSTOR	0	20	13 2														
47.335	84.447	2574	593.6(757)	1.3111	25.454	2567											
47.335	29.695	1996	408.0(573)	1.3311	25.454	2278	1.338	3047	2.141	0.74674	25.498	0.1333	3429	35.365	134.5	0.34	0.03
COMBUSTOR	0	21	14 4														
48.110	77.416	2741	588.4(809)	1.3053	25.638	2632											
48.110	32.145	2224	419.8(642)	1.3208	25.638	2387	1.217	2905	2.163	0.69659	25.498	0.1429	3479	31.444	136.4	0.34	0.14
COMBUSTOR	0	22	15 19														
48.775	74.760	2386	599.4(772)	1.3216	22.840	2620											
48.775	25.609	1827	404.1(577)	1.3419	22.840	2310	1.353	3127	2.309	0.64776	25.749	0.1552	3520	31.475	136.7	0.66	0.01
COMBUSTOR	0	23	16 2														
48.785	74.687	2388	599.4(772)	1.3215	22.842	2621											
48.785	25.588	1829	403.9(577)	1.3418	22.842	2311	1.353	3128	2.309	0.64691	25.749	0.1554	3522	31.443	136.8	0.66	0.01
COMBUSTOR	0	24	17 4														
49.315	71.086	2482	596.1(804)	1.3171	22.932	2662											
49.315	24.487	1908	394.3(603)	1.3375	22.932	2353	1.351	3177	2.325	0.60501	25.749	0.1662	3585	29.878	139.2	0.66	0.05
COMBUSTOR	0	25	18 4														
50.725	65.643	2625	587.7(853)	1.3103	23.080	2722											
50.725	19.619	1956	350.9(617)	1.3339	23.080	2371	1.452	3442	2.347	0.51564	25.749	0.1950	3734	27.583	145.0	0.66	0.10
COMBUSTOR	0	26	19 5														
52.825	52.452	3219	575.6(1058)	1.2819	23.669	2944											
52.825	23.550	2688	377.5(865)	1.3002	23.671	2709	1.162	3149	2.417	0.42263	25.749	0.2379	3955	20.681	153.6	0.66	0.32
COMBUSTOR	0	27	20 3														
53.325	52.621	3200	572.8(1052)	1.2827	23.657	2937											
53.325	19.655	2559	335.4(819)	1.3048	23.659	2649	1.301	3447	2.415	0.40536	25.749	0.2480	4007	21.713	155.6	0.66	0.32
COMBUSTOR	0	28	21 4														
54.075	51.492	3253	568.8(1070)	1.2800	23.720	2954											
54.075	17.622	2553	309.0(816)	1.3042	23.722	2641	1.365	3606	2.420	0.38210	25.749	0.2631	4073	21.410	158.2	0.66	0.34
COMBUSTOR	0	29	22 3														
54.835	50.960	3270	564.8(1075)	1.2790	23.746	2959											
54.835	15.562	2500	279.8(796)	1.3057	23.749	2614	1.445	3776	2.422	0.36133	25.749	0.2782	4131	21.206	160.4	0.66	0.35
COMBUSTOR	0	30	23 4														
55.760	49.836	3311	560.2(1090)	1.2767	23.800	2972											
55.760	14.003	2486	254.5(791)	1.3059	23.803	2604	1.502	3911	2.426	0.33926	25.749	0.2963	4193	20.620	162.8	0.66	0.37
COMBUSTOR	0	31	24 5														
56.260	39.859	3703	557.9(1228)	1.2545	24.208	3089											
56.260	13.161	2927	257.4(941)	1.2847	24.223	2778	1.396	3878	2.468	0.27332	25.749	0.3678	4343	16.471	168.7	0.66	0.51
COMBUSTOR	0	32	25 5														
56.315	44.669	3408	557.6(1124)	1.2715	23.903	3002											
56.315	10.190	2447	200.4(775)	1.3055	23.909	2577	1.640	4228	2.441	0.27245	25.749	0.3690	4347	17.901	168.8	0.66	0.40
COMBUSTOR	0	33	26 3														
56.455	44.597	3413	557.1(1125)	1.2712	23.910	3003											
56.455	10.072	2445	197.3(774)	1.3055	23.915	2576	1.647	4243	2.442	0.27050	25.749	0.3717	4354	17.835	169.1	0.66	0.41
COMBUSTOR	0	34	27 5														
56.535	40.650	3684	556.8(1221)	1.2557	24.191	3083											
56.535	12.697	2874	244.5(923)	1.2868	24.205	2756	1.434	3953	2.465	0.27353	25.749	0.3675	4359	16.803	169.3	0.66	0.51
COMBUSTOR	0	35	28 3														
56.815	41.296	3665	555.6(1214)	1.2568	24.174	3078											
56.815	12.225	2823	232.3(904)	1.2888	24.187	2735	1.471	4022	2.463	0.27262	25.749	0.3688	4373	17.039	169.8	0.66	0.50
COMBUSTOR	0	36	29 4														
57.041	42.807	3589	554.7(1187)	1.2613	24.097	3056											
57.041	11.529	2687	212.5(857)	1.2946	24.107	2678	1.545	4138	2.455	0.27221	25.749	0.3693	4383	17.505	170.2	0.66	0.47
COMBUSTOR	0	37	30 5														
57.765	50.270	3286	551.9(1081)	1.2777	23.796	2962											
57.765	8.460	2183	149.2(685)	1.3164	23.800	2450	1.832	4489	2.423	0.26789	25.749	0.3753	4406	18.689	171.1	0.66	0.37

3/03/75

READING = 0071 BLOCK = 197 TIME = 284.738 MACH 6.0 PT = 742.499 TT = 2905.7

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	742.499	2906	641.8	(768)	1.2962	28.898	2546											
0.000	0.376	387	-36.0	(93)	1.3986	28.897	965	6.034	5824	1.819	0.10570	25.234	0.9321	4658	9.567	184.6		
SPIKE TIP NS		2	0	5														
0.600	18.100	2906	641.8	(768)	1.2962	28.897	2546											
0.600	16.434	2842	622.7	(749)	1.2982	28.897	2520	0.388	977	2.074	0.10570	25.234	0.9321	4690	1.606	185.9		
WIND TUNNEL		3	0	0														
0.000	742.499	2906	641.8	(768)	1.2962	28.898	2546											
0.000	0.380	389	-35.7	(93)	1.3986	28.897	967	6.022	5823	1.819	0.10660	25.451	0.9321	4697	9.646	184.5		
SPIKE TIP NS		4	0	0														
0.600	18.100	2906	641.8	(768)	1.2962	28.897	2546											
0.600	16.402	2841	622.3	(749)	1.2982	28.897	2519	0.392	987	2.074	0.10660	25.451	0.9321	4697	1.636	184.5		
INLET THROAT		5	0	4														
40.400	196.619	2797	609.3	(736)	1.2997	28.897	2501											
40.400	17.412	1549	255.4	(385)	1.3458	28.897	1894	2.222	4208	1.898	0.88476	25.234	0.1114	3797	57.857	150.5		
INLET UPNRSK		6	0	3														
40.400	196.619	2797	609.3	(736)	1.2997	28.897	2501											
40.400	14.848	1486	238.8	(368)	1.3492	28.897	1857	2.318	4306	1.898	0.80432	25.234	0.1225	3843	53.818	152.3		
INLET DNNRSK		7	0	4														
40.400	107.645	2797	609.3	(736)	1.2997	28.897	2501											
40.400	90.581	2688	576.7	(704)	1.3032	28.897	2455	0.520	1276	1.940	0.80432	25.234	0.1225	3843	15.951	152.3		
COMBUSTOR	0	8	1	4														
40.410	196.217	2797	609.5	(736)	1.2997	28.897	2501											
40.410	17.432	1550	255.8	(385)	1.3458	28.897	1894	2.220	4206	1.899	0.88465	25.234	0.1114	3796	57.821	150.4		
COMBUSTOR	0	9	2	4														
41.310	159.796	2785	605.7	(733)	1.3000	28.897	2496											
41.310	20.232	1688	293.2	(422)	1.3388	28.897	1972	2.005	3955	1.911	0.88623	25.234	0.1112	3678	54.470	145.8		
COMBUSTOR	0	10	3	4														
41.375	157.635	2784	605.4	(732)	1.3001	28.897	2496											
41.375	20.497	1699	296.1	(425)	1.3383	28.897	1978	1.989	3935	1.912	0.88757	25.234	0.1110	3669	54.270	145.4		
COMBUSTOR	0	11	4	4														
41.500	153.174	2782	604.8	(732)	1.3001	28.897	2495											
41.500	20.967	1720	301.8	(431)	1.3373	28.897	1989	1.958	3894	1.914	0.88777	25.234	0.1110	3650	53.730	144.7		
COMBUSTOR	0	12	5	5														
42.460	132.214	2765	599.7	(727)	1.3007	28.897	2487											
42.460	23.223	1819	328.8	(458)	1.3331	28.897	2042	1.803	3681	1.922	0.87906	25.234	0.1121	3554	50.291	140.8		
COMBUSTOR	0	13	6	3														
44.095	117.129	2729	589.1	(716)	1.3018	28.897	2472											
44.095	24.041	1865	341.4	(470)	1.3314	28.897	2067	1.703	3520	1.927	0.84884	25.234	0.1161	3476	46.438	137.7		
COMBUSTOR	0	14	7	3														
44.310	115.820	2724	587.7	(715)	1.3020	28.897	2470											
44.310	24.191	1869	342.7	(472)	1.3312	28.897	2069	1.692	3501	1.927	0.84736	25.234	0.1163	3466	46.103	137.4		
COMBUSTOR	0	15	8	3														
44.800	113.065	2713	584.3	(711)	1.3024	28.897	2466											
44.800	24.499	1878	345.1	(474)	1.3309	28.897	2073	1.669	3459	1.927	0.84406	25.234	0.1167	3446	45.378	136.5		
COMBUSTOR	0	16	9	3														
44.810	113.020	2713	584.2	(711)	1.3024	28.897	2465											
44.810	24.508	1878	345.1	(474)	1.3309	28.897	2074	1.668	3458	1.927	0.84407	25.234	0.1167	3445	45.367	136.5		
COMBUSTOR	0	17	10	21														
46.250	82.863	2663	601.1	(785)	1.3074	25.520	2604											
46.250	26.770	2027	395.9	(581)	1.3292	25.520	2291	1.399	3205	2.152	0.80393	25.498	0.1238	3389	40.037	132.9	0.34	0.07
COMBUSTOR	0	18	11	21														
46.260	87.139	2557	601.1	(752)	1.3122	25.415	2562											
46.260	26.796	1916	396.0	(548)	1.3345	25.415	2237	1.432	3203	2.137	0.80344	25.498	0.1239	3389	39.992	132.9	0.34	0.01

Reading 71

$t = 284.74$ sec.

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1212.	(LBF)
MEASURED THRUST	1424.	(LBF)
CALCULATED SPECIFIC IMPULSE	1777.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	2088.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.4936	
MEASURED THRUST COEFFICIENT	0.5801	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	6025.	(LBF)
NET THRUST	1341.	(LBF)
SPECIFIC IMPULSE	1967.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.5466	

MOMENTUM AND FORCES

INLET FRICTION DRAG	129.0	(LBF)
INLET MOMENTUM CHANGE	-884.3	(LBF)
COMBUSTOR FRICTION DRAG	242.8	(LBF)
COMBUSTOR STRUT DRAG	3.10	(LBF)
COMBUSTOR MOMENTUM CHANGE	884.	(LBF)
NOZZLE FRICTION DRAG	42.77	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1212.	(LBF)
NOZZLE PRESSURE INTEGRAL	1255.	(LBF)
EXTERNAL FRICTION DRAG	66.27	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1009.	(LBF)
TOTAL EXTERNAL DRAG	-1075.	(LBF)
TOTAL STRUT DRAG	3.10	(LBF)
CAVITY FORCE	-1177.	(LBF)
CALCULATED LOAD CELL FORCE	-1041.	(LBF)
MEASURED LOAD CELL FORCE	-828.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE -167.8, -122.9,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3148	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	55.194	(IN)
NOZZLE SHROUD TRAILING EDGE	73.539	(IN)
NOZZLE PLUG TRAILING EDGE	87.291	(IN)
STRUT LEADING EDGE	56.455	(IN)
STRUT TRAILING EDGE	65.055	(IN)
COMBUSTOR EXIT	65.055	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.9319	
ADDITIVE DRAG COEFFICIENT	0.0053	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1426	
DELTA PT2	0.1159	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.2660	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1449	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8751	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9008	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.8953	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8592	
ENTHALPY AT P0 - SUPERSONIC	0.24	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	24.75	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0270	
EQUIVALENCE RATIO	0.873	
COMBUSTOR EFFICIENCY	0.689	
TOTAL PRESSURE RATIO	0.1848	
COMBUSTOR EFFECTIVENESS	0.7040	
INJECTOR DISCHARGE COEFFICIENTS	0.7920,	0.6775,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9731	
NOZZLE COEFFICIENT - CT	0.8969	
PROCESS EFFICIENCY	0.9623	
KINETIC ENERGY EFFICIENCY	0.9411	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.300	
1C	44.300	
2A	46.775	D
2C	46.250	E
3A	54.065	
3B	56.250	
4	44.800	

READING = 0071 BLOCK = 181 TIME = 270.338 MACH 6.0 PT = 743.249 TT = 2908.5

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.290E 02	1.290E 02	2.368E-03	4.459E-02
4.041E 01	1.620E-01	1.292E 02	2.369E-03	4.441E-02
4.131E 01	1.454E 01	1.437E 02	2.489E-03	4.744E-02
4.137E 01	1.051E 00	1.448E 02	2.497E-03	4.773E-02
4.150E 01	2.026E 00	1.468E 02	2.515E-03	4.817E-02
4.246E 01	1.529E 01	1.621E 02	2.593E-03	4.984E-02
4.409E 01	2.511E 01	1.872E 02	2.638E-03	4.898E-02
4.431E 01	3.202E 00	1.904E 02	2.639E-03	4.895E-02
4.480E 01	7.262E 00	1.977E 02	2.634E-03	4.809E-02
4.481E 01	1.431E-01	1.978E 02	2.634E-03	4.808E-02
4.625E 01	2.099E 01	2.188E 02	3.288E-03	5.342E-02
4.626E 01	1.316E-01	2.189E 02	2.867E-03	6.270E-02
4.731E 01	1.150E 01	2.304E 02	2.908E-03	6.488E-02
4.733E 01	2.492E-01	2.307E 02	3.015E-03	6.216E-02
4.811E 01	7.680E 00	2.384E 02	2.960E-03	6.161E-02
4.877E 01	7.417E 00	2.458E 02	3.333E-03	4.877E-02
4.878E 01	1.172E-01	2.459E 02	2.850E-03	5.810E-02
4.931E 01	5.785E 00	2.517E 02	2.767E-03	5.217E-02
5.072E 01	1.394E 01	2.656E 02	2.733E-03	5.336E-02
5.282E 01	1.811E 01	2.837E 02	2.816E-03	4.338E-02
5.332E 01	4.313E 00	2.880E 02	2.974E-03	3.950E-02
5.407E 01	6.544E 00	2.946E 02	2.961E-03	3.675E-02
5.483E 01	6.558E 00	3.011E 02	2.941E-03	3.388E-02
5.576E 01	7.779E 00	3.089E 02	2.908E-03	3.201E-02
5.626E 01	2.572E 00	3.115E 02	2.889E-03	2.869E-02
5.631E 01	3.822E-01	3.119E 02	3.043E-03	2.355E-02
5.645E 01	1.003E 00	3.129E 02	2.881E-03	2.460E-02
5.653E 01	5.768E-01	3.134E 02	3.242E-03	2.524E-02
5.681E 01	2.005E 00	3.154E 02	3.038E-03	2.648E-02
5.704E 01	1.594E 00	3.170E 02	3.014E-03	2.554E-02
5.776E 01	5.282E 00	3.223E 02	2.930E-03	2.181E-02
5.878E 01	7.666E 00	3.300E 02	2.724E-03	1.621E-02
6.079E 01	1.374E 01	3.437E 02	2.445E-03	2.841E-02
6.221E 01	9.488E 00	3.532E 02	2.866E-03	2.645E-02
6.468E 01	1.637E 01	3.696E 02	3.011E-03	2.976E-02
6.505E 01	2.190E 00	3.718E 02	3.299E-03	2.721E-02
6.509E 01	2.264E-01	3.720E 02	3.356E-03	2.745E-02
6.529E 01	1.151E 00	3.732E 02	3.352E-03	2.738E-02
6.695E 01	9.951E 00	3.831E 02	3.211E-03	2.086E-02
6.762E 01	3.782E 00	3.869E 02	3.181E-03	1.900E-02
6.839E 01	4.030E 00	3.909E 02	3.116E-03	1.483E-02
6.911E 01	3.279E 00	3.942E 02	3.069E-03	1.220E-02
6.972E 01	2.460E 00	3.967E 02	3.038E-03	1.052E-02
7.067E 01	3.329E 00	4.000E 02	2.992E-03	8.398E-03
7.110E 01	1.353E 00	4.013E 02	2.978E-03	7.824E-03
7.263E 01	4.399E 00	4.057E 02	2.946E-03	6.706E-03
7.278E 01	3.791E-01	4.061E 02	2.935E-03	6.354E-03
7.353E 01	1.590E 00	4.077E 02	2.863E-03	4.462E-03
7.354E 01	2.616E-03	4.077E 02	2.863E-03	4.451E-03
7.486E 01	9.333E-01	4.086E 02	2.905E-03	5.756E-03
7.771E 01	2.187E 00	4.108E 02	2.945E-03	7.593E-03
8.161E 01	2.328E 00	4.132E 02	2.871E-03	5.712E-03
8.442E 01	9.808E-01	4.141E 02	2.813E-03	4.509E-03
8.728E 01	4.124E-01	4.146E 02	2.852E-03	5.868E-03
8.729E 01	0.000	4.146E 02	2.852E-03	5.870E-03

READING = 0071 BLOCK = 181 TIME = 270.338 MACH 6.0 PT = 743.249 TT = 2908.5

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.505E 01	1.897E 01	1.835E 01	4.734E 02	-4.580E 03	-2.462E 03	-2.117E 03	4.337E 03	5.040E 01	2.553E-02	4.673E 01	2.469E-02
6.509E 01	1.897E 01	1.843E 01	4.734E 02	-4.585E 03	-2.465E 03	-2.120E 03	4.342E 03	5.040E 01	2.553E-02	4.695E 01	2.480E-02
6.529E 01	1.811E 01	1.685E 01	4.734E 02	-4.609E 03	-2.478E 03	-2.131E 03	4.368E 03	4.811E 01	2.437E-02	5.007E 01	2.536E-02
6.695E 01	1.096E 01	8.630E 00	6.297E 02	-4.784E 03	-2.567E 03	-2.217E 03	4.563E 03	2.911E 01	1.475E-02	2.292E 01	1.161E-02
6.762E 01	7.933E 00	8.715E 00	8.132E 02	-4.841E 03	-2.594E 03	-2.247E 03	4.665E 03	2.107E 01	1.067E-02	2.315E 01	1.173E-02
6.839E 01	4.455E 00	6.723E 00	1.004E 03	-4.902E 03	-2.620E 03	-2.282E 03	4.760E 03	1.183E 01	5.994E-03	1.786E 01	9.045E-03
6.911E 01	3.499E 00	4.860E 00	1.128E 03	-4.956E 03	-2.639E 03	-2.317E 03	4.848E 03	9.295E 00	4.708E-03	1.291E 01	6.539E-03
6.972E 01	2.690E 00	4.062E 00	1.209E 03	-4.998E 03	-2.652E 03	-2.346E 03	4.922E 03	7.145E 00	3.619E-03	1.079E 01	5.466E-03
7.067E 01	2.108E 00	2.820E 00	1.301E 03	-5.054E 03	-2.668E 03	-2.386E 03	5.036E 03	5.600E 00	2.837E-03	7.490E 00	3.794E-03
7.110E 01	1.845E 00	2.627E 00	1.334E 03	-5.076E 03	-2.674E 03	-2.402E 03	5.088E 03	4.900E 00	2.482E-03	6.977E 00	3.534E-03
7.263E 01	1.695E 00	1.940E 00	1.429E 03	-5.157E 03	-2.692E 03	-2.449E 03	5.273E 03	4.501E 00	2.280E-03	5.153E 00	2.610E-03
7.278E 01	1.680E 00	1.702E 00	1.437E 03	-5.142E 03	-2.693E 03	-2.449E 03	5.290E 03	4.462E 00	2.260E-03	4.520E 00	2.289E-03
7.353E 01	1.611E 00	5.100E-01	1.481E 03	-5.168E 03	-2.701E 03	-2.467E 03	5.374E 03	4.280E 00	2.168E-03	1.355E 00	6.862E-04
7.354E 01	1.611E 00	5.036E-01	1.482E 03	-5.168E 03	-2.701E 03	-2.468E 03	5.375E 03	4.279E 00	2.168E-03	1.338E 00	6.776E-04
7.486E 01	1.490E 00	0.000	1.515E 03	-5.214E 03	-2.713E 03	-2.506E 03	5.427E 03	3.957E 00	2.005E-03	0.000	0.000
7.771E 01	2.180E 00	0.000	1.589E 03	-5.241E 03	-2.735E 03	-2.506E 03	5.525E 03	5.790E 00	2.933E-03	0.000	0.000
8.161E 01	1.500E 00	0.000	1.667E 03	-5.204E 03	-2.758E 03	-2.506E 03	5.630E 03	3.984E 00	2.018E-03	0.000	0.000
8.442E 01	1.105E 00	0.000	1.696E 03	-5.285E 03	-2.779E 03	-2.506E 03	5.684E 03	2.935E 00	1.487E-03	0.000	0.000
8.728E 01	1.575E 00	0.000	1.728E 03	-5.319E 03	-2.813E 03	-2.506E 03	5.707E 03	4.183E 00	2.119E-03	0.000	0.000
8.729E 01	1.576E 00	0.000	1.728E 03	-5.319E 03	-2.813E 03	-2.506E 03	5.707E 03	4.186E 00	2.120E-03	0.000	0.000

XABS	P=IB	P=OB	PDA	POX	Q=IB	Q=OB	CANALL	P=IB/PSO	P=IB/PTO	P=OB/PSO	P=OB/PTO
6.981E=01	1.040E 00	0.000	=4.406E=01	0.000	0.000	0.000	2.470E=02	2.762E 00	1.399E=03	0.000	0.000
1.836E 01	1.040E 00	0.000	=3.463E 01	0.000	0.000	0.000	1.634E 02	2.762E 00	1.399E=03	0.000	0.000
3.070E 01	3.005E 00	0.000	=1.986E 02	0.000	0.000	0.000	5.053E 02	7.981E 00	4.043E=03	0.000	0.000
3.508E 01	3.832E 00	0.000	=4.201E 02	0.000	0.000	0.000	6.804E 02	1.018E 01	5.156E=03	0.000	0.000
3.519E 01	4.154E 00	5.562E 00	=4.846E 02	0.000	0.000	0.000	6.854E 02	1.103E 01	5.589E=03	1.477E 01	7.483E=03
3.520E 01	4.171E 00	5.534E 00	=4.847E 02	0.000	0.000	0.000	6.857E 02	1.108E 01	5.612E=03	1.470E 01	7.445E=03
3.555E 01	5.175E 00	3.881E 00	=4.973E 02	0.000	0.000	0.000	7.209E 02	1.674E 01	6.963E=03	1.031E 01	5.222E=03
3.586E 01	5.048E 00	2.400E 00	=5.183E 02	=5.951E 02	=5.951E 02	0.000	7.529E 02	1.301E 01	6.588E=03	6.374E 00	3.229E=03
3.606E 01	4.970E 00	3.538E 00	=5.319E 02	=6.018E 02	=6.018E 02	0.000	7.729E 02	1.320E 01	6.687E=03	9.397E 00	4.760E=03
3.648E 01	4.158E 00	5.987E 00	=5.507E 02	=6.165E 02	=6.165E 02	0.000	8.164E 02	1.104E 01	5.595E=03	1.590E 01	8.055E=03
3.701E 01	5.170E 00	9.077E 00	=5.717E 02	=6.528E 02	=6.359E 02	=1.683E 01	8.726E 02	1.373E 01	6.956E=03	2.411E 01	1.221E=02
3.732E 01	4.897E 00	1.091E 01	=5.832E 02	=6.704E 02	=6.479E 02	=2.246E 01	9.063E 02	1.301E 01	6.588E=03	2.898E 01	1.468E=02
3.803E 01	4.285E 00	1.451E 01	=5.973E 02	=7.109E 02	=6.762E 02	=3.479E 01	9.834E 02	1.138E 01	5.765E=03	3.853E 01	1.952E=02
3.834E 01	8.042E 00	1.611E 01	=6.023E 02	=7.300E 02	=6.897E 02	=4.024E 01	1.018E 03	2.136E 01	1.082E=02	4.279E 01	2.168E=02
3.875E 01	1.288E 01	1.763E 01	=6.239E 02	=7.599E 02	=7.087E 02	=4.721E 01	1.064E 03	3.420E 01	1.733E=02	4.683E 01	2.372E=02
3.881E 01	1.365E 01	1.787E 01	=6.278E 02	=7.602E 02	=7.119E 02	=4.832E 01	1.072E 03	3.626E 01	1.837E=02	4.748E 01	2.405E=02
3.901E 01	1.598E 01	1.771E 01	=6.391E 02	=7.735E 02	=7.218E 02	=5.166E 01	1.094E 03	4.244E 01	2.150E=02	4.703E 01	2.382E=02
3.932E 01	1.872E 01	1.744E 01	=6.603E 02	=7.958E 02	=7.388E 02	=5.702E 01	1.130E 03	4.973E 01	2.519E=02	4.631E 01	2.346E=02
3.950E 01	2.025E 01	1.310E 01	=6.734E 02	=8.088E 02	=7.488E 02	=5.997E 01	1.150E 03	5.378E 01	2.725E=02	3.479E 01	1.762E=02
3.981E 01	1.804E 01	5.300E 00	=7.013E 02	=8.330E 02	=7.679E 02	=6.519E 01	1.187E 03	4.790E 01	2.427E=02	1.408E 01	7.131E=03
4.000E 01	1.673E 01	5.066E 00	=7.184E 02	=8.479E 02	=7.797E 02	=6.821E 01	1.209E 03	4.445E 01	2.252E=02	1.346E 01	6.816E=03
4.040E 01	1.996E 01	4.561E 00	=7.553E 02	=8.816E 02	=8.067E 02	=7.494E 01	1.256E 03	5.302E 01	2.686E=02	1.212E 01	6.137E=03
4.041E 01	2.004E 01	4.549E 00	=7.561E 02	=8.825E 02	=8.074E 02	=7.511E 01	1.257E 03	5.323E 01	2.697E=02	1.208E 01	6.120E=03
4.131E 01	2.730E 01	3.413E 00	=8.389E 02	=9.765E 02	=8.752E 02	=1.013E 02	1.363E 03	7.252E 01	3.675E=02	9.066E 00	4.592E=03
4.137E 01	2.783E 01	3.331E 00	=8.671E 02	=9.845E 02	=8.805E 02	=1.040E 02	1.371E 03	7.391E 01	3.744E=02	8.848E 00	4.482E=03
4.150E 01	2.884E 01	3.933E 00	=8.832E 02	=1.000E 03	=8.908E 02	=1.094E 02	1.386E 03	7.699E 01	3.900E=02	1.044E 01	5.291E=03
4.246E 01	2.074E 01	8.544E 00	=9.638E 02	=1.136E 03	=9.758E 02	=1.624E 02	1.501E 03	5.508E 01	2.790E=02	2.269E 01	1.150E=02
4.409E 01	2.511E 01	1.640E 01	=1.017E 03	=1.413E 03	=1.130E 03	=2.825E 02	1.699E 03	6.670E 01	3.379E=02	4.355E 01	2.206E=02
4.431E 01	2.569E 01	1.877E 01	=1.023E 03	=1.452E 03	=1.151E 03	=3.009E 02	1.725E 03	6.823E 01	3.456E=02	4.987E 01	2.526E=02
4.480E 01	2.700E 01	2.419E 01	=1.030E 03	=1.549E 03	=1.198E 03	=3.505E 02	1.785E 03	7.171E 01	3.633E=02	6.425E 01	3.255E=02
4.481E 01	2.708E 01	2.430E 01	=1.030E 03	=1.551E 03	=1.199E 03	=3.516E 02	1.786E 03	7.193E 01	3.644E=02	6.454E 01	3.269E=02
4.625E 01	3.903E 01	4.021E 01	=9.743E 02	=1.874E 03	=1.335E 03	=5.382E 02	1.963E 03	1.037E 02	5.251E=02	1.068E 02	5.410E=02
4.626E 01	3.911E 01	4.032E 01	=9.736E 02	=1.876E 03	=1.336E 03	=5.397E 02	1.964E 03	1.039E 02	5.262E=02	1.071E 02	5.425E=02
4.731E 01	4.782E 01	5.193E 01	=8.561E 02	=2.165E 03	=1.431E 03	=6.939E 02	2.094E 03	1.270E 02	6.434E=02	1.379E 02	6.986E=02
4.733E 01	4.794E 01	5.220E 01	=8.537E 02	=2.131E 03	=1.433E 03	=6.975E 02	2.097E 03	1.273E 02	6.450E=02	1.386E 02	7.023E=02
4.811E 01	5.170E 01	4.177E 01	=7.429E 02	=2.308E 03	=1.501E 03	=8.074E 02	2.194E 03	1.373E 02	6.956E=02	1.109E 02	5.620E=02
4.877E 01	3.283E 01	3.283E 01	=6.293E 02	=2.452E 03	=1.558E 03	=8.946E 02	2.277E 03	8.719E 01	4.417E=02	8.719E 01	4.417E=02
4.878E 01	3.269E 01	3.269E 01	=6.276E 02	=2.454E 03	=1.559E 03	=8.959E 02	2.278E 03	8.683E 01	4.399E=02	8.683E 01	4.399E=02
4.931E 01	2.556E 01	2.556E 01	=5.471E 02	=2.564E 03	=1.603E 03	=9.608E 02	2.345E 03	6.789E 01	3.439E=02	6.789E 01	3.439E=02
5.072E 01	2.877E 01	2.877E 01	=3.463E 02	=2.855E 03	=1.716E 03	=1.119E 03	2.522E 03	7.641E 01	3.871E=02	7.641E 01	3.871E=02
5.282E 01	2.227E 01	2.227E 01	=6.530E 01	=3.195E 03	=1.873E 03	=1.322E 03	2.789E 03	5.916E 01	2.997E=02	5.916E 01	2.997E=02
5.332E 01	2.122E 01	2.122E 01	=8.768E 00	=3.274E 03	=1.909E 03	=1.366E 03	2.852E 03	5.636E 01	2.855E=02	5.636E 01	2.855E=02
5.407E 01	1.889E 01	1.889E 01	6.885E 01	=3.369E 03	=1.960E 03	=1.429E 03	2.948E 03	5.018E 01	2.542E=02	5.018E 01	2.542E=02
5.483E 01	1.654E 01	1.654E 01	1.375E 02	=3.501E 03	=2.011E 03	=1.490E 03	3.046E 03	4.392E 01	2.225E=02	4.392E 01	2.225E=02
5.576E 01	1.514E 01	1.514E 01	2.110E 02	=3.631E 03	=2.070E 03	=1.561E 03	3.164E 03	4.020E 01	2.036E=02	4.020E 01	2.036E=02
5.626E 01	1.438E 01	1.438E 01	3.749E 02	=3.694E 03	=2.096E 03	=1.598E 03	3.209E 03	3.819E 01	1.935E=02	3.819E 01	1.935E=02
5.631E 01	7.725E 00	1.430E 01	3.790E 02	=3.700E 03	=2.098E 03	=1.602E 03	3.216E 03	2.052E 01	1.039E=02	3.797E 01	1.923E=02
5.645E 01	7.725E 00	1.408E 01	3.882E 02	=3.716E 03	=2.104E 03	=1.612E 03	3.234E 03	2.052E 01	1.039E=02	3.740E 01	1.895E=02
5.653E 01	1.396E 01	1.396E 01	3.939E 02	=3.725E 03	=2.108E 03	=1.618E 03	3.245E 03	3.708E 01	1.878E=02	3.708E 01	1.878E=02
5.681E 01	1.394E 01	1.394E 01	4.118E 02	=3.757E 03	=2.119E 03	=1.637E 03	3.280E 03	3.696E 01	1.821E=02	3.696E 01	1.821E=02
5.704E 01	1.254E 01	1.254E 01	4.245E 02	=3.781E 03	=2.128E 03	=1.653E 03	3.309E 03	3.332E 01	1.688E=02	3.332E 01	1.688E=02
5.776E 01	9.360E 00	9.360E 00	4.542E 02	=3.859E 03	=2.156E 03	=1.703E 03	3.402E 03	2.486E 01	1.259E=02	2.486E 01	1.259E=02
5.878E 01	5.550E 00	5.550E 00	4.715E 02	=3.955E 03	=2.192E 03	=1.764E 03	3.532E 03	1.474E 01	7.467E=03	1.474E 01	7.467E=03
6.079E 01	1.122E 01	1.122E 01	4.734E 02	=4.132E 03	=2.257E 03	=1.875E 03	3.790E 03	2.981E 01	1.510E=02	2.981E 01	1.510E=02
6.221E 01	1.240E 01	1.240E 01	4.734E 02	=4.265E 03	=2.309E 03	=1.956E 03	3.972E 03	3.293E 01	1.668E=02	3.293E 01	1.668E=02
6.468E 01	1.756E 01	1.756E 01	4.734E 02	=4.564E 03	=2.438E 03	=2.095E 03	4.289E 03	4.664E 01	2.363E=02	4.664E 01	2.363E=02

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	A	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 6														
58.785	85.035	2990	546.4(1037)	1.2932	22.135	2947											
58.785	5.550	1541	7.0(501)	1.3482	22.136	2160	2.405	5195	2.472	0.26811	25.936	0.3777	4725	21.646	182.2	0.87	0.24
COMBUSTOR	0	39	32 6														
60.795	49.226	3738	539.6(1315)	1.2539	22.858	3193											
60.795	11.225	2721	127.0(919)	1.2921	22.873	2765	1.644	4544	2.574	0.27744	25.936	0.3650	4712	19.592	181.7	0.87	0.46
COMBUSTOR	0	40	33 4														
62.215	48.440	3822	534.4(1347)	1.2485	22.956	3215											
62.215	12.400	2868	141.7(973)	1.2855	22.975	2825	1.569	4433	2.579	0.28496	25.936	0.3553	4702	19.633	181.3	0.87	0.49
COMBUSTOR	0	41	34 5														
64.679	39.944	4281	524.1(1521)	1.2148	23.461	3320											
64.679	17.560	3682	247.5(1279)	1.2443	23.523	3112	1.196	3720	2.616	0.27011	25.936	0.3749	4665	15.616	180.6	0.87	0.65
COMBUSTOR	0	42	35 4														
65.055	36.542	4370	522.3(1555)	1.2065	23.562	3335											
65.055	18.661	3885	288.8(1358)	1.2314	23.632	3172	1.077	3418	2.627	0.25111	25.936	0.4032	4683	13.339	180.5	0.87	0.69
COMBUSTOR REGEN		43	36 21														
65.055	36.542	4530	611.7(1621)	1.1959	23.512	3385											
65.055	12.552	3769	238.1(1312)	1.2358	23.640	3130	1.382	4324	2.647	0.25111	25.936	0.4032	4782	16.874	184.4	0.87	0.69
NOZZLE AE		44	37 5														
87.291	36.542	4370	522.3(1531)	1.2065	23.562	3335											
87.291	1.041	2097	*421.9(675)	1.3052	23.672	2398	2.867	6874	2.627	0.05227	25.936	1.9371	6058	5.584	233.6	0.87	0.69
NOZZLE PO		45	38 5														
87.291	36.542	4370	522.3(1531)	1.2065	23.562	3335											
87.291	0.377	1643	*581.0(516)	1.3260	23.672	2139	3.473	7430	2.627	0.02608	25.936	3.8828	6364	3.011	245.4	0.87	0.69
NOZZLE AE REGEN		46	39 5														
87.291	36.542	4530	611.7(1621)	1.1959	23.512	3385											
87.291	1.091	2241	*369.8(727)	1.2995	23.672	2473	2.834	7008	2.647	0.05227	25.936	1.9371	6191	5.693	238.7	0.87	0.69
NOZZLE PO REGEN		47	40 5														
87.291	36.542	4530	611.7(1621)	1.1959	23.512	3385											
87.291	0.377	1742	*547.0(550)	1.3210	23.672	2198	3.464	7614	2.647	0.02521	25.936	4.0168	6526	2.983	251.6	0.87	0.69
FICTIVE COMBUSTR		67	60 0														
65.055	197.699	5166	522.3(1862)	1.1699	24.444	3506											
65.055	0.377	1504	*1058.6(455)	1.3219	24.865	1993	4.462	8894	2.501	0.03584	25.936	2.8254	7442	4.954	287.0	0.87	1.00
FICTIVE NOZZLE		68	61 0														
87.291	29.323	4309	493.8(1530)	1.2079	23.569	3314											
87.291	1.149	2216	*378.9(717)	1.3004	23.672	2460	2.686	6608	2.639	0.05227	25.936	1.9371	5895	5.369	227.3	0.87	0.69

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	r/A	ν	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12	4														
47.310	82.946	2785	594.0(	849)	1.3021	24.861	2693											
47.310	49.872	2471	487.3(	744)	1.3125	24.861	2547	0.908	2311	2.219	0.75040	25.594	0.1332	3540	26.954	138.3	0.44	0.16
COMBUSTOR	0	20	13	2														
47.335	82.934	2787	595.8(	850)	1.3020	24.863	2694											
47.335	50.070	2475	487.8(	745)	1.3124	24.864	2549	0.904	2303	2.219	0.74956	25.594	0.1333	3542	26.828	138.4	0.44	0.16
COMBUSTOR	0	21	14	4														
48.110	79.511	2980	586.9(	912)	1.2928	25.077	2764											
48.110	46.736	2657	468.7(	796)	1.3042	25.077	2611	0.931	2431	2.238	0.69922	25.594	0.1429	3645	26.421	142.4		
																	0.44	0.26
COMBUSTOR	0	22	15	11														
48.775	75.331	2574	604.3(	887)	1.3141	21.646	2787											
48.775	32.827	2102	426.6(	710)	1.3306	21.646	2535	1.177	2982	2.446	0.65245	25.936	0.1552	3709	30.240	143.0	0.87	0.08
COMBUSTOR	0	23	16	2														
48.785	75.303	2575	604.3(	887)	1.3141	21.647	2788											
48.785	32.693	2101	425.7(	710)	1.3306	21.647	2534	1.180	2989	2.446	0.65160	25.936	0.1554	3711	30.267	143.1	0.87	0.08
COMBUSTOR	0	24	17	0														
49.315	75.389	2564	600.1(	883)	1.3145	21.647	2782											
49.315	25.562	1966	376.3(	660)	1.3357	21.647	2456	1.363	3346	2.445	0.60940	25.936	0.1662	3785	31.690	146.0	0.87	0.08
COMBUSTOR	0	25	18	5														
50.725	64.173	2995	569.6(1041)		1.2942	22.041	2957											
50.725	28.769	2485	391.9(	846)	1.3115	22.042	2711	1.160	3196	2.502	0.51938	25.936	0.1950	3972	25.389	153.2	0.87	0.21
COMBUSTOR	0	26	19	5														
52.825	57.639	3349	575.7(1171)		1.2766	22.397	3081											
52.825	22.275	2708	321.0(	923)	1.2989	22.400	2794	1.278	3570	2.539	0.42969	25.936	0.2379	4235	23.619	163.3	0.87	0.32
COMBUSTOR	0	27	20	4														
53.325	56.297	3421	572.7(1198)		1.2727	22.472	3104											
53.325	21.220	2756	306.9(	940)	1.2962	22.476	2811	1.297	3646	2.546	0.40829	25.936	0.2480	4287	23.137	165.3	0.87	0.34
COMBUSTOR	0	28	21	4														
54.075	55.216	3471	568.2(1217)		1.2699	22.530	3119											
54.075	18.894	2740	275.5(	932)	1.2959	22.535	2799	1.367	3827	2.551	0.38487	25.936	0.2631	4358	22.891	168.0	0.87	0.36
COMBUSTOR	0	29	22	3														
54.835	54.859	3477	568.9(1219)		1.2695	22.545	3120											
54.835	16.537	2667	240.6(	904)	1.2982	22.551	2763	1.456	4022	2.551	0.36395	25.936	0.2782	4421	22.748	170.4	0.87	0.37
COMBUSTOR	0	30	23	4														
55.760	53.287	3540	558.9(1242)		1.2659	22.618	3139											
55.760	15.136	2685	216.3(	910)	1.2966	22.625	2766	1.497	4140	2.557	0.34172	25.936	0.2963	4486	21.987	173.0	0.87	0.39
COMBUSTOR	0	31	24	5														
56.260	42.518	3971	556.5(1405)		1.2389	23.054	3257											
56.260	14.378	3187	223.0(1094)		1.2722	23.083	2955	1.582	4085	2.601	0.27530	25.936	0.3678	4648	17.478	179.2	0.87	0.52
COMBUSTOR	0	32	25	5														
56.315	47.786	3641	556.2(1280)		1.2599	22.722	3168											
56.315	11.010	2644	155.3(	892)	1.2966	22.733	2738	1.636	4479	2.573	0.27443	25.936	0.3690	4651	19.103	179.3	0.87	0.42
COMBUSTOR	0	33	26	3														
56.455	47.659	3648	559.6(1283)		1.2594	22.731	3170											
56.455	10.904	2646	152.2(	893)	1.2964	22.743	2738	1.641	4493	2.573	0.27246	25.936	0.3717	4660	19.023	179.7	0.87	0.42
COMBUSTOR	0	34	27	5														
56.535	43.245	3959	555.3(1400)		1.2397	23.045	3254											
56.535	13.962	3145	210.1(1078)		1.2740	23.073	2938	1.419	4156	2.599	0.27551	25.936	0.3675	4665	17.794	179.8	0.87	0.52
COMBUSTOR	0	35	28	3														
56.815	43.778	3948	554.0(1396)		1.2405	23.037	3251											
56.815	13.537	3105	198.2(1062)		1.2756	23.064	2922	1.444	4220	2.597	0.27460	25.936	0.3688	4680	18.009	180.5	0.87	0.52
COMBUSTOR	0	36	29	4														
57.041	45.299	3867	553.1(1365)		1.2459	22.956	3230											
57.041	12.584	2958	175.3(1007)		1.2822	22.978	2865	1.518	4348	2.590	0.27418	25.936	0.3693	4691	18.526	180.9	0.87	0.49
COMBUSTOR	0	37	30	5														
57.765	52.878	3539	550.1(1241)		1.2657	22.638	3137											
57.765	9.360	2406	102.5(	865)	1.3061	22.645	2627	1.802	4734	2.557	0.26983	25.936	0.3753	4716	19.650	181.8	0.87	0.40

01/29/75

READING = 0071 BLOCK = 161 TIME = 270.336 MACH 6.0 PT = 743.249 TT = 2904.5 PAGE 1

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	743.249	2908	642.7(769)	1.2961	28.898	2547											
0.000	0.377	388	35.9(93)	1.3986	28.897	966	6.032	5827	1.819	0.10580	25.254	0.9319	4664	9.581	184.7		
SPIKE TIP NS		2	0 5														
0.600	18.100	2908	642.7(769)	1.2961	28.897	2547											
0.600	16.428	2845	623.5(750)	1.2981	28.897	2521	0.389	980	2.074	0.10580	25.254	0.9319	4690	1.611	185.7		
WIND TUNNEL		3	0 0														
0.000	743.249	2908	642.7(769)	1.2961	28.898	2547											
0.000	0.380	389	35.6(93)	1.3986	28.897	967	6.023	5826	1.819	0.10654	25.431	0.9319	4696	9.646	184.6		
SPIKE TIP NS		4	0 0														
0.600	18.100	2908	642.7(769)	1.2961	28.897	2547											
0.600	16.402	2844	623.2(750)	1.2982	28.897	2520	0.392	988	2.074	0.10654	25.431	0.9319	4696	1.635	184.6		
INLET THROAT		5	0 4														
40.400	197.699	2792	607.7(735)	1.2998	28.897	2499											
40.400	17.338	1542	253.6(383)	1.3462	28.897	1890	2.228	4210	1.898	0.88545	25.254	0.1114	3799	57.930	150.4		
INLET UPNRSK		6	0 3														
40.400	197.699	2792	607.7(735)	1.2998	28.897	2499											
40.400	14.787	1479	237.0(366)	1.3496	28.897	1854	2.324	4307	1.898	0.80495	25.254	0.1225	3845	53.879	152.2		
INLET DNNRSK		7	0 4														
40.400	107.722	2792	607.8(735)	1.2998	28.897	2499											
40.400	90.685	2683	575.3(703)	1.3033	28.897	2453	0.519	1273	1.939	0.80495	25.254	0.1225	3845	15.930	152.2		
COMBUSTOR	0	8	1 4														
40.410	197.296	2792	607.7(735)	1.2998	28.897	2499											
40.410	17.358	1543	253.9(383)	1.3461	28.897	1890	2.226	4208	1.898	0.88534	25.254	0.1114	3798	57.694	150.4		
COMBUSTOR	0	9	2 4														
41.310	160.621	2779	604.0(731)	1.3002	28.897	2494											
41.310	20.116	1679	290.7(420)	1.3392	28.897	1967	2.013	3959	1.910	0.88692	25.254	0.1112	3681	54.575	145.7		
COMBUSTOR	0	10	3 4														
41.375	158.655	2778	603.7(731)	1.3003	28.897	2493											
41.375	20.377	1690	293.6(423)	1.3387	28.897	1973											
							1.997	3939	1.911	0.88826	25.254	0.1110	3671	54.378	145.4		
COMBUSTOR	0	11	4 4														
41.500	154.184	2776	603.1(730)	1.3003	28.897	2492											
41.500	20.839	1710	299.1(428)	1.3378	28.897	1984	1.965	3900	1.913	0.88847	25.254	0.1110	3653	53.844	144.7		
COMBUSTOR	0	12	5 5														
42.460	133.182	2758	597.6(725)	1.3009	28.897	2485											
42.460	23.041	1807	325.6(455)	1.3336	28.897	2036	1.812	3689	1.921	0.87974	25.254	0.1121	3557	50.441	140.9		
COMBUSTOR	0	13	6 3														
44.095	117.997	2721	586.8(714)	1.3021	28.897	2469											
44.095	23.821	1851	337.7(467)	1.3319	28.897	2060	1.714	3530	1.925	0.84950	25.254	0.1161	3479	46.601	137.8		
COMBUSTOR	0	14	7 3														
44.310	116.786	2716	585.2(712)	1.3022	28.897	2467											
44.310	23.940	1854	338.6(468)	1.3318	28.897	2061	1.704	3513	1.926	0.84803	25.254	0.1163	3470	46.292	137.4		
COMBUSTOR	0	15	8 3														
44.800	115.166	2703	581.4(709)	1.3027	28.897	2461											
44.800	23.968	1852	337.9(467)	1.3318	28.897	2060	1.694	3490	1.925	0.84472	25.254	0.1167	3456	45.817	136.9		
COMBUSTOR	0	16	9 3														
44.810	115.157	2703	581.3(709)	1.3027	28.897	2461											
44.810	23.967	1852	337.9(467)	1.3319	28.897	2060	1.694	3490	1.925	0.84473	25.254	0.1167	3456	45.814	136.8		
COMBUSTOR	0	17	10 13														
46.250	86.948	2591	603.9(787)	1.3113	24.644	2618											
46.250	39.620	2142	454.2(658)	1.3266	24.644	2394	1.143	2736	2.197	0.80697	25.594	0.1238	3433	34.313	134.1	0.44	0.05
COMBUSTOR	0	18	11 2														
46.260	86.875	2593	603.8(788)	1.3112	24.646	2619											
46.260	39.716	2146	454.6(660)	1.3264	24.646	2396	1.140	2732	2.197	0.80648	25.594	0.1239	3434	34.239	134.2	0.44	0.05

Reading 71

t = 270.34 sec.

400

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1185.	(LBF)
MEASURED THRUST	1328.	(LBF)
CALCULATED SPECIFIC IMPULSE	1741.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1951.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.4830	
MEASURED THRUST COEFFICIENT	0.5412	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	5998.	(LBF)
NET THRUST	1317.	(LBF)
SPECIFIC IMPULSE	1935.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.5368	

MOMENTUM AND FORCES

INLET FRICTION DRAG	129.2	(LBF)
INLET MOMENTUM CHANGE	-885.9	(LBF)
COMBUSTOR FRICTION DRAG	241.8	(LBF)
COMBUSTOR STRUT DRAG	2.61	(LBF)
COMBUSTOR MOMENTUM CHANGE	854.	(LBF)
NOZZLE FRICTION DRAG	42.59	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1217.	(LBF)
NOZZLE PRESSURE INTEGRAL	1260.	(LBF)
EXTERNAL FRICTION DRAG	66.45	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1009.	(LBF)
TOTAL EXTERNAL DRAG	-1076.	(LBF)
TOTAL STRUT DRAG	2.61	(LBF)
CAVITY FORCE	-1183.	(LBF)
CALCULATED LOAD CELL FORCE	-1074.	(LBF)
MEASURED LOAD CELL FORCE	-930.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	-167.7, -122.8,	

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.9315	
ADDITIVE DRAG COEFFICIENT	0.0093	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1427	
DELTA PT2	0.1158	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.2658	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1450	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8752	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9008	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.8946	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8585	
ENTHALPY AT P0 - SUPERSONIC	0.67	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	25.22	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0270	
EQUIVALENCE RATIO	0.873	
COMBUSTOR EFFICIENCY	0.672	
TOTAL PRESSURE RATIO	0.1837	
COMBUSTOR EFFECTIVENESS	0.6921	
INJECTOR DISCHARGE COEFFICIENTS	0.7959, 0.6767,	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9760
NOZZLE COEFFICIENT - CT	0.9001
PROCESS EFFICIENCY	0.9685
KINETIC ENERGY EFFICIENCY	0.9473

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3148	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.199	(IN)
NOZZLE SHROUD TRAILING EDGE	73.539	(IN)
NOZZLE PLUG TRAILING EDGE	87.291	(IN)
STRUT LEADING EDGE	56.455	(IN)
STRUT TRAILING EDGE	65.055	(IN)
COMBUSTOR EXIT	65.055	(IN)

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.300	
1C	44.300	
2A	48.775	D
2C	46.250	E
3A	54.065	
3B	56.250	
4	44.800	

READING = 0071 BLOCK = 1/7 TIME = 266.738 MACH 6.0 PI = 742.249 TT = 2916.0

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.292E 02	1.292E 02	2.371E-03	4.458E-02
4.041E 01	1.620E-01	1.294E 02	2.372E-03	4.440E-02
4.131E 01	1.453E 01	1.439E 02	2.491E-03	4.741E-02
4.137E 01	1.050E 00	1.450E 02	2.499E-03	4.769E-02
4.150E 01	2.026E 00	1.470E 02	2.517E-03	4.814E-02
4.246E 01	1.528E 01	1.625E 02	2.594E-03	4.959E-02
4.409E 01	2.510E 01	1.874E 02	2.639E-03	4.891E-02
4.431E 01	3.201E 00	1.906E 02	2.640E-03	4.887E-02
4.480E 01	7.259E 00	1.979E 02	2.635E-03	4.862E-02
4.481E 01	1.431E-01	1.980E 02	2.635E-03	4.862E-02
4.625E 01	2.106E 01	2.191E 02	3.291E-03	5.296E-02
4.626E 01	1.324E-01	2.192E 02	2.859E-03	6.238E-02
4.731E 01	1.158E 01	2.308E 02	2.899E-03	6.464E-02
4.733E 01	2.516E-01	2.310E 02	3.008E-03	6.188E-02
4.811E 01	7.742E 00	2.388E 02	2.957E-03	6.077E-02
4.877E 01	7.455E 00	2.462E 02	3.333E-03	4.896E-02
4.878E 01	1.174E-01	2.463E 02	2.834E-03	5.753E-02
4.931E 01	5.764E 00	2.521E 02	2.753E-03	5.166E-02
5.072E 01	1.383E 01	2.659E 02	2.721E-03	5.313E-02
5.282E 01	1.790E 01	2.838E 02	2.811E-03	4.328E-02
5.332E 01	4.267E 00	2.881E 02	2.970E-03	3.925E-02
5.407E 01	6.483E 00	2.946E 02	2.954E-03	3.659E-02
5.483E 01	6.490E 00	3.011E 02	2.936E-03	3.376E-02
5.576E 01	7.699E 00	3.088E 02	2.904E-03	3.190E-02
5.626E 01	2.546E 00	3.113E 02	2.886E-03	2.878E-02
5.631E 01	3.784E-01	3.117E 02	3.038E-03	2.345E-02
5.645E 01	9.938E-01	3.127E 02	2.876E-03	2.450E-02
5.653E 01	5.708E-01	3.132E 02	3.236E-03	2.516E-02
5.681E 01	1.983E 00	3.152E 02	3.034E-03	2.639E-02
5.704E 01	1.577E 00	3.168E 02	3.010E-03	2.546E-02
5.776E 01	5.225E 00	3.220E 02	2.927E-03	2.183E-02
5.878E 01	7.593E 00	3.296E 02	2.726E-03	1.626E-02
6.079E 01	1.365E 01	3.433E 02	2.445E-03	2.803E-02
6.221E 01	9.408E 00	3.527E 02	2.854E-03	2.641E-02
6.468E 01	1.618E 01	3.689E 02	3.008E-03	2.964E-02
6.505E 01	2.164E 00	3.710E 02	3.255E-03	2.710E-02
6.509E 01	2.235E-01	3.713E 02	3.349E-03	2.734E-02
6.529E 01	1.136E 00	3.724E 02	3.346E-03	2.727E-02
6.695E 01	9.845E 00	3.822E 02	3.202E-03	2.079E-02
6.762E 01	3.749E 00	3.860E 02	3.172E-03	1.896E-02
6.839E 01	4.000E 00	3.900E 02	3.106E-03	1.482E-02
6.911E 01	3.258E 00	3.932E 02	3.059E-03	1.219E-02
6.972E 01	2.445E 00	3.957E 02	3.028E-03	1.052E-02
7.067E 01	3.321E 00	3.990E 02	2.983E-03	8.477E-03
7.110E 01	1.357E 00	4.004E 02	2.970E-03	7.925E-03
7.263E 01	4.415E 00	4.048E 02	2.937E-03	6.776E-03
7.278E 01	3.803E-01	4.052E 02	2.926E-03	6.428E-03
7.353E 01	1.599E 00	4.068E 02	2.855E-03	4.538E-03
7.354E 01	2.638E-03	4.068E 02	2.854E-03	4.528E-03
7.486E 01	9.358E-01	4.077E 02	2.895E-03	5.778E-03
7.771E 01	2.181E 00	4.099E 02	2.935E-03	7.613E-03
8.161E 01	2.344E 00	4.122E 02	2.866E-03	5.889E-03
8.442E 01	9.891E-01	4.132E 02	2.803E-03	4.515E-03
8.728E 01	4.123E-01	4.136E 02	2.843E-03	5.930E-03
8.729E 01	0.000	4.136E 02	2.844E-03	5.933E-03

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	-P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.505E 01	1.894E 01	1.832E 01	4.408E 02	-4.626E 03	-2.501E 03	-2.124E 03	4.337E 03	5.025E 01	2.551E-02	4.861E 01	2.468E-02
6.509E 01	1.894E 01	1.840E 01	4.408E 02	-4.631E 03	-2.504E 03	-2.127E 03	4.342E 03	5.025E 01	2.551E-02	4.883E 01	2.480E-02
6.529E 01	1.807E 01	1.882E 01	4.408E 02	-4.656E 03	-2.517E 03	-2.138E 03	4.368E 03	4.795E 01	2.435E-02	4.995E 01	2.536E-02
6.695E 01	1.091E 01	8.590E 00	5.967E 02	-4.832E 03	-2.608E 03	-2.224E 03	4.583E 03	2.895E 01	1.470E-02	2.279E 01	1.157E-02
6.762E 01	7.906E 00	8.700E 00	7.795E 02	-4.889E 03	-2.635E 03	-2.254E 03	4.665E 03	2.098E 01	1.065E-02	2.308E 01	1.172E-02
6.839E 01	4.455E 00	6.715E 00	9.698E 02	-4.951E 03	-2.661E 03	-2.290F 03	4.760E 03	1.182E 01	6.002E-03	1.781E 01	9.044E-03
6.911E 01	3.494E 00	4.855E 00	1.094E 03	-5.006E 03	-2.681E 03	-2.325E 03	4.848E 03	9.271E 00	4.707E-03	1.288E 01	6.541E-03
6.972E 01	2.680E 00	4.067E 00	1.175E 03	-5.049E 03	-2.694E 03	-2.355E 03	4.922E 03	7.111E 00	3.611E-03	1.079E 01	5.479E-03
7.067E 01	2.146E 00	2.840E 00	1.267E 03	-5.106E 03	-2.710E 03	-2.396E 03	5.036E 03	5.695E 00	2.892E-03	7.535E 00	3.826E-03
7.110E 01	1.905E 00	2.641E 00	1.300E 03	-5.128E 03	-2.716E 03	-2.412E 03	5.088E 03	5.054E 00	2.567E-03	7.008E 00	3.559E-03
7.263E 01	1.746E 00	1.935E 00	1.398E 03	-5.190E 03	-2.734E 03	-2.456E 03	5.273E 03	4.632E 00	2.352E-03	5.134E 00	2.607E-03
7.278E 01	1.730E 00	1.699E 00	1.405E 03	-5.195E 03	-2.736E 03	-2.459E 03	5.290E 03	4.590E 00	2.331E-03	4.508E 00	2.289E-03
7.353E 01	1.645E 00	5.200E-01	1.450E 03	-5.222E 03	-2.743E 03	-2.478E 03	5.374E 03	4.365E 00	2.217E-03	1.380E 00	7.006E-04
7.354E 01	1.645E 00	5.137E-01	1.451E 03	-5.222E 03	-2.743E 03	-2.479E 03	5.375E 03	4.364E 00	2.216E-03	1.363E 00	6.921E-04
7.486E 01	1.495E 00	0.000	1.485E 03	-5.274E 03	-2.756E 03	-2.518E 03	5.427E 03	3.967E 00	2.014E-03	0.000	0.000
7.771E 01	2.185E 00	0.000	1.558E 03	-5.257E 03	-2.778E 03	-2.459E 03	5.525E 03	5.797E 00	2.944E-03	0.000	0.000
8.161E 01	1.560E 00	0.000	1.638E 03	-5.260E 03	-2.802E 03	-2.459E 03	5.630E 03	4.139E 00	2.102E-03	0.000	0.000
8.442E 01	1.105E 00	0.000	1.668E 03	-5.281E 03	-2.823E 03	-2.459E 03	5.684E 03	2.932E 00	1.489E-03	0.000	0.000
8.728E 01	1.595E 00	0.000	1.700E 03	-5.316E 03	-2.857E 03	-2.459E 03	5.707E 03	4.232E 00	2.149E-03	0.000	0.000
8.729E 01	1.596E 00	0.000	1.700E 03	-5.316E 03	-2.857E 03	-2.459E 03	5.707E 03	4.235E 00	2.150E-03	0.000	0.000

READING = 0071 BLOCK = 177 TIME = 266.738 MACH 6.0 PT = 742.249 TT = 2910.0

XABS	P-IB	P-OB	PDA	QQX	Q-IB	Q-OB	CAWALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OB/PT0
6.981E-01	1.040E 00	0.000	-4.409E-01	0.000	0.000	0.000	2.470E-02	2.759E 00	1.401E-03	0.000	0.000
1.836E 01	1.040E 00	0.000	-3.463E 01	0.000	0.000	0.000	1.634E 02	2.759E 00	1.401E-03	0.000	0.000
3.070E 01	3.020E 00	0.000	-1.992E 02	0.000	0.000	0.000	5.053E 02	8.013E 00	4.069E-03	0.000	0.000
3.508E 01	3.840E 00	0.000	-4.215E 02	0.000	0.000	0.000	6.804E 02	1.019E 01	5.173E-03	0.000	0.000
3.519E 01	4.162E 00	5.568E 00	-4.860E 02	0.000	0.000	0.000	6.854E 02	1.104E 01	5.607E-03	1.477E 01	7.501E-03
3.520E 01	4.179E 00	5.540E 00	-4.861E 02	0.000	0.000	0.000	6.857E 02	1.109E 01	5.630E-03	1.470E 01	7.464E-03
3.555E 01	5.180E 00	3.911E 00	-4.987E 02	0.000	0.000	0.000	7.209E 02	1.374E 01	6.979E-03	1.038E 01	5.269E-03
3.586E 01	5.060E 00	2.450E 00	-5.197E 02	-6.056E 02	-6.056E 02	0.000	7.529E 02	1.342E 01	6.817E-03	6.500E 00	3.301E-03
3.606E 01	4.985E 00	3.581E 00	-5.331E 02	-6.123E 02	-6.123E 02	0.000	7.729E 02	1.323E 01	6.716E-03	9.502E 00	4.825E-03
3.648E 01	4.162E 00	6.016E 00	-5.519E 02	-6.273E 02	-6.273E 02	0.000	8.164E 02	1.104E 01	5.608E-03	1.596E 01	8.105E-03
3.701E 01	5.190E 00	9.086E 00	-5.730E 02	-6.659E 02	-6.471E 02	-1.680E 01	8.726E 02	1.377E 01	6.992E-03	2.411E 01	1.224E-02
3.732E 01	4.912E 00	1.091E 01	-5.846E 02	-6.817E 02	-6.592E 02	-2.242E 01	9.063E 02	1.303E 01	6.618E-03	2.895E 01	1.470E-02
3.803E 01	4.290E 00	1.451E 01	-5.988E 02	-7.227E 02	-6.880E 02	-3.472E 01	9.834E 02	1.138E 01	5.780E-03	3.849E 01	1.955E-02
3.834E 01	8.049E 00	1.611E 01	-6.039E 02	-7.420E 02	-7.018E 02	-4.016E 01	1.018E 03	2.135E 01	1.084E-02	4.275E 01	2.171E-02
3.875E 01	1.289E 01	1.763E 01	-6.255E 02	-7.682E 02	-7.211E 02	-4.712E 01	1.064E 03	3.419E 01	1.736E-02	4.678E 01	2.375E-02
3.881E 01	1.366E 01	1.787E 01	-6.294E 02	-7.726E 02	-7.244E 02	-4.823E 01	1.072E 03	3.624E 01	1.840E-02	4.743E 01	2.408E-02
3.901E 01	1.599E 01	1.771E 01	-6.407E 02	-7.860E 02	-7.345E 02	-5.156E 01	1.094E 03	4.242E 01	2.154E-02	4.698E 01	2.386E-02
3.932E 01	1.872E 01	1.744E 01	-6.619E 02	-8.086E 02	-7.517E 02	-5.690E 01	1.130E 03	4.967E 01	2.522E-02	4.627E 01	2.349E-02
3.950E 01	2.024E 01	1.311E 01	-6.750E 02	-8.218E 02	-7.619E 02	-5.985E 01	1.150E 03	5.369E 01	2.727E-02	3.478E 01	1.766E-02
3.981E 01	1.802E 01	5.325E 00	-7.028E 02	-8.463E 02	-7.813E 02	-6.506E 01	1.187E 03	4.781E 01	2.428E-02	1.413E 01	7.174E-03
4.000E 01	1.672E 01	5.091E 00	-7.199E 02	-8.614E 02	-7.933E 02	-6.807E 01	1.209E 03	4.435E 01	2.252E-02	1.351E 01	6.858E-03
4.040E 01	1.994E 01	4.584E 00	-7.566E 02	-8.955E 02	-8.208E 02	-7.479E 01	1.256E 03	5.290E 01	2.686E-02	1.216E 01	6.176E-03
4.041E 01	2.002E 01	4.572E 00	-7.575E 02	-8.964E 02	-8.215E 02	-7.496E 01	1.257E 03	5.311E 01	2.697E-02	1.213E 01	6.159E-03
4.131E 01	2.727E 01	3.452E 00	-8.600E 02	-9.917E 02	-8.904E 02	-1.013E 02	1.363E 03	7.235E 01	3.674E-02	9.107E 00	4.624E-03
4.137E 01	2.779E 01	3.350E 00	-8.682E 02	-9.998E 02	-8.958E 02	-1.040E 02	1.371E 03	7.374E 01	3.744E-02	8.888E 00	4.513E-03
4.150E 01	2.880E 01	3.952E 00	-8.843E 02	-1.016E 03	-9.063E 02	-1.095E 02	1.386E 03	7.641E 01	3.880E-02	1.049E 01	5.324E-03
4.246E 01	2.074E 01	8.568E 00	-9.647E 02	-1.156E 03	-9.928E 02	-1.631E 02	1.501E 03	5.502E 01	2.794E-02	2.273E 01	1.154E-02
4.409E 01	2.509E 01	1.645E 01	-1.018E 03	-1.455E 03	-1.150E 03	-2.849E 02	1.699E 03	6.656E 01	3.380E-02	4.359E 01	2.213E-02
4.431E 01	2.566E 01	1.868E 01	-1.023E 03	-1.475E 03	-1.171E 03	-3.035E 02	1.725E 03	6.806E 01	3.457E-02	4.956E 01	2.517E-02
4.480E 01	2.696E 01	2.381E 01	-1.031E 03	-1.513E 03	-1.220E 03	-3.535E 02	1.785E 03	7.154E 01	3.633E-02	6.318E 01	3.208E-02
4.481E 01	2.704E 01	2.391E 01	-1.031E 03	-1.515E 03	-1.221E 03	-3.546E 02	1.786E 03	7.175E 01	3.643E-02	6.345E 01	3.222E-02
4.625E 01	3.875E 01	3.899E 01	-9.800E 02	-1.901E 03	-1.359E 03	-5.413E 02	1.963E 03	1.028E 02	5.221E-02	1.035E 02	5.253E-02
4.626E 01	3.883E 01	3.910E 01	-9.794E 02	-1.903E 03	-1.360E 03	-5.428E 02	1.964E 03	1.030E 02	5.232E-02	1.037E 02	5.267E-02
4.731E 01	4.737E 01	5.009E 01	-8.690E 02	-2.154E 03	-1.457E 03	-6.967E 02	2.094E 03	1.257E 02	6.382E-02	1.329E 02	6.748E-02
4.733E 01	4.749E 01	5.035E 01	-8.668E 02	-2.160E 03	-1.459E 03	-7.004E 02	2.097E 03	1.260E 02	6.398E-02	1.336E 02	6.783E-02
4.811E 01	5.115E 01	4.042E 01	-7.616E 02	-2.338E 03	-1.528E 03	-8.099E 02	2.194E 03	1.357E 02	6.891E-02	1.072E 02	5.445E-02
4.877E 01	3.190E 01	3.190E 01	-6.517E 02	-2.483E 03	-1.586E 03	-8.970E 02	2.277E 03	8.464E 01	4.298E-02	8.464E 01	4.298E-02
4.878E 01	3.177E 01	3.177E 01	-6.501E 02	-2.485E 03	-1.587E 03	-8.982E 02	2.278E 03	8.430E 01	4.281E-02	8.430E 01	4.281E-02
4.931E 01	2.498E 01	2.498E 01	-5.717E 02	-2.595E 03	-1.632E 03	-9.629E 02	2.345E 03	6.629E 01	3.366E-02	6.629E 01	3.366E-02
5.072E 01	2.844E 01	2.844E 01	-3.742E 02	-2.868E 03	-1.747E 03	-1.121E 03	2.522E 03	7.547E 01	3.832E-02	7.547E 01	3.832E-02
5.282E 01	2.227E 01	2.227E 01	-9.497E 01	-3.231E 03	-1.907E 03	-1.324E 03	2.789E 03	5.910E 01	3.001E-02	5.910E 01	3.001E-02
5.332E 01	2.104E 01	2.104E 01	-3.866E 01	-3.310E 03	-1.943E 03	-1.367E 03	2.852E 03	5.583E 01	2.835E-02	5.583E 01	2.835E-02
5.407E 01	1.877E 01	1.877E 01	3.836E 01	-3.426E 03	-1.995E 03	-1.430E 03	2.948E 03	4.979E 01	2.528E-02	4.979E 01	2.528E-02
5.483E 01	1.646E 01	1.646E 01	1.066E 02	-3.539E 03	-2.047E 03	-1.492E 03	3.046E 03	4.368E 01	2.218E-02	4.368E 01	2.218E-02
5.576E 01	1.508E 01	1.508E 01	1.798E 02	-3.670E 03	-2.107E 03	-1.563E 03	3.164E 03	4.001E 01	2.031E-02	4.001E 01	2.031E-02
5.626E 01	1.433E 01	1.433E 01	3.423E 02	-3.733E 03	-2.133E 03	-1.600E 03	3.209E 03	3.802E 01	1.931E-02	3.802E 01	1.931E-02
5.631E 01	7.650E 00	1.425E 01	3.464E 02	-3.740E 03	-2.135E 03	-1.604E 03	3.216E 03	2.030E 01	1.031E-02	3.780E 01	1.920E-02
5.645E 01	7.650E 00	1.404E 01	3.556E 02	-3.756E 03	-2.141E 03	-1.614E 03	3.234E 03	2.030E 01	1.031E-02	3.725E 01	1.891E-02
5.653E 01	1.392E 01	1.392E 01	3.612E 02	-3.765E 03	-2.145E 03	-1.620E 03	3.245E 03	3.693E 01	1.875E-02	3.693E 01	1.875E-02
5.681E 01	1.350E 01	1.350E 01	3.791E 02	-3.796E 03	-2.156E 03	-1.640E 03	3.280E 03	3.582E 01	1.819E-02	3.582E 01	1.819E-02
5.704E 01	1.252E 01	1.252E 01	3.918E 02	-3.822E 03	-2.165E 03	-1.656E 03	3.309E 03	3.322E 01	1.687E-02	3.322E 01	1.687E-02
5.776E 01	9.390E 00	9.390E 00	4.215E 02	-3.900E 03	-2.193E 03	-1.707E 03	3.402E 03	2.491E 01	1.265E-02	2.491E 01	1.265E-02
5.878E 01	5.587E 00	5.587E 00	4.388E 02	-3.997E 03	-2.229E 03	-1.768E 03	3.532E 03	1.482E 01	7.528E-03	1.482E 01	7.528E-03
6.079E 01	1.102E 01	1.102E 01	4.408E 02	-4.175E 03	-2.294E 03	-1.881F 03	3.790E 03	2.925E 01	1.485E-02	2.925E 01	1.485E-02
6.221E 01	1.234E 01	1.234F 01	4.408E 02	-4.309E 03	-2.346E 03	-1.962E 03	3.972E 03	3.275E 01	1.663E-02	3.275E 01	1.663E-02
6.468E 01	1.753E 01	1.753E 01	4.408E 02	-4.579E 03	-2.477E 03	-2.102E 03	4.289E 03	4.651E 01	2.362E-02	4.651E 01	2.362E-02

READING = 0071 BLOCK = 177 TIME = 266.738 MACH 6.0 PT = 742.249 TT = 2916.0

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 6														
58.785	82.916	2971	546.6(1030)	1.2941	22.116	2940											
58.785	5.587	1542	14.9(502)	1.3483	22.117	2162	2.386	5158	2.473	0.26759	25.886	0.3777	4690	21.450	181.2	0.87	0.23
COMBUSTOR	0	39	32 6														
60.795	49.115	3683	539.7(1295)	1.2571	22.802	3177											
60.795	11.025	2665	129.0(899)	1.2948	22.815	2742	1.653	4534	2.571	0.27690	25.886	0.3650	4678	19.509	180.7	0.87	0.45
COMBUSTOR	0	40	33 4														
62.215	47.974	3784	534.6(1333)	1.2508	22.916	3205											
62.215	12.344	2838	146.6(962)	1.2872	22.933	2814	1.566	4406	2.578	0.28441	25.886	0.3553	4668	19.474	180.3	0.87	0.48
COMBUSTOR	0	41	34 5														
64.679	39.593	4239	524.1(1505)	1.2160	23.415	3311											
64.679	17.529	3643	252.1(1265)	1.2470	23.470	3102	1.189	3689	2.615	0.26959	25.886	0.3749	4651	15.457	179.7	0.87	0.64
COMBUSTOR	0	42	35 4														
65.055	36.247	4323	522.3(1537)	1.2102	23.511	3326											
65.055	18.629	3840	293.1(1342)	1.2348	23.573	3163	1.071	3387	2.626	0.25063	25.886	0.4032	4649	13.192	179.6	0.87	0.67
COMBUSTOR REGEN	43	36	21														
65.055	36.247	4488	612.1(1605)	1.1993	23.464	3377											
65.055	34.521	4453	593.6(1591)	1.2010	23.473	3366	0.286	962	2.646	0.25063	25.886	0.4032	4339	3.746	167.6	0.87	0.67
NOZZLE AE	44	37	5														
87.291	36.247	4323	522.3(1515)	1.2102	23.511	3326											
87.291	1.028	2059	-411.6(662)	1.3075	23.608	2381	2.871	6836	2.626	0.05217	25.886	1.9371	6010	5.543	232.2	0.87	0.67
NOZZLE PO	45	38	5														
87.291	36.247	4323	522.3(1515)	1.2102	23.511	3326											
87.291	0.377	1616	-566.3(507)	1.3281	23.608	2126	3.471	7381	2.626	0.02630	25.886	3.8434	6309	3.016	243.7	0.87	0.67
NOZZLE AE REGEN	46	39	5														
87.291	36.247	4488	612.1(1605)	1.1993	23.464	3377											
87.291	1.079	2203	-359.7(714)	1.3017	23.608	2457	2.838	6973	2.646	0.05217	25.886	1.9371	6146	5.654	237.4	0.87	0.67
NOZZLE PO REGEN	47	40	5														
87.291	36.247	4488	612.1(1605)	1.1993	23.464	3377											
87.291	0.377	1715	-532.4(541)	1.3230	23.608	2186	3.462	7567	2.646	0.02541	25.886	3.9778	6472	2.988	250.0	0.87	0.67
FICTIVE COMBUSTR	67	60	0														
65.055	197.281	5166	522.3(1863)	1.1698	24.443	3506											
65.055	0.377	1505	-1058.4(455)	1.3218	24.864	1994	4.459	8894	2.501	0.03584	25.886	2.8199	7428	4.954	286.9	0.87	1.00
FICTIVE NOZZLE	68	61	0														
87.291	29.847	4267	495.7(1514)	1.2117	23.517	3306											
87.291	1.117	2159	-375.5(698)	1.3034	23.608	2434	2.712	6602	2.636	0.05217	25.886	1.9371	5866	5.353	226.6	0.87	0.67

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 4														
47.310	82.464	2775	595.0(846)	1.3025	24.836	2690											
47.310	48.729	2452	485.1(738)	1.3133	24.836	2539	0.924	2345	2.219	0.74898	25.546	0.1332	3524	27.295	137.9	0.44	0.15
COMBUSTOR	0	20	13 2														
47.335	82.442	2777	594.8(847)	1.3025	24.838	2691											
47.335	48.918	2456	485.6(739)	1.3132	24.839	2541	0.920	2337	2.219	0.74814	25.546	0.1333	3526	27.171	138.0	0.44	0.15
COMBUSTOR	0	21	14 4														
48.110	78.973	2956	587.8(905)	1.2939	25.038	2756											
48.110	45.784	2607	467.6(787)	1.3056	25.038	2600	0.945	2453	2.237	0.69790	25.546	0.1429	3623	26.602	141.8	0.44	0.25
COMBUSTOR	0	22	15 11														
48.775	75.067	2537	605.1(874)	1.3158	21.612	2771											
48.775	31.901	2057	424.9(694)	1.3327	21.612	2511	1.196	3003	2.442	0.65119	25.886	0.1552	3684	30.387	142.3	0.87	0.07
COMBUSTOR	0	23	16 2														
48.785	75.042	2538	605.0(874)	1.3158	21.613	2771											
48.785	31.773	2056	424.1(694)	1.3327	21.613	2511	1.198	3009	2.443	0.65034	25.886	0.1554	3686	30.410	142.4	0.87	0.07
COMBUSTOR	0	24	17 2														
49.315	75.194	2525	600.8(869)	1.3163	21.611	2765											
49.315	24.983	1924	376.6(646)	1.3378	21.611	2433	1.377	3350	2.440	0.60822	25.886	0.1662	3758	31.660	145.2	0.87	0.07
COMBUSTOR	0	25	18 5														
50.725	63.697	2956	590.2(1026)	1.2961	22.004	2942											
50.725	28.444	2449	394.0(833)	1.3133	22.005	2696	1.163	3134	2.500	0.51837	25.886	0.1950	3942	25.247	152.3	0.87	0.20
COMBUSTOR	0	26	19 5														
52.825	57.072	3315	576.2(1159)	1.2783	22.362	3069											
52.825	22.275	2684	326.2(915)	1.3002	22.365	2785	1.270	3537	2.538	0.42487	25.886	0.2379	4203	23.356	162.4	0.87	0.31
COMBUSTOR	0	27	20 4														
53.325	55.858	3380	573.2(1183)	1.2749	22.430	3090											
53.325	21.042	2719	310.2(927)	1.2980	22.434	2797	1.297	3627	2.544	0.40750	25.886	0.2480	4255	22.972	164.4	0.87	0.33
COMBUSTOR	0	28	21 4														
54.075	54.754	3431	568.7(1202)	1.2721	22.489	3106											
54.075	18.768	2706	279.4(920)	1.2977	22.494	2786	1.366	3805	2.549	0.38413	25.886	0.2631	4326	22.712	167.1	0.87	0.35
COMBUSTOR	0	29	22 3														
54.835	54.345	3440	564.4(1205)	1.2715	22.508	3108											
54.835	16.462	2638	245.3(894)	1.2998	22.513	2752	1.452	3995	2.549	0.36325	25.886	0.2782	4388	22.554	169.5	0.87	0.36
COMBUSTOR	0	30	23 4														
55.760	52.765	3504	559.3(1228)	1.2679	22.581	3127											
55.760	15.078	2657	221.3(900)	1.2981	22.587	2755	1.493	4112	2.556	0.34106	25.886	0.2963	4453	21.797	172.0	0.87	0.38
COMBUSTOR	0	31	24 5														
56.260	42.106	3930	556.8(1389)	1.2416	23.010	3247											
56.260	14.330	3153	228.1(1082)	1.2741	23.036	2945	1.377	4056	2.600	0.27477	25.886	0.3678	4613	17.318	178.2	0.87	0.51
COMBUSTOR	0	32	25 5														
56.315	47.325	3602	556.5(1265)	1.2621	22.682	3157											
56.315	10.949	2613	160.5(881)	1.2982	22.692	2726	1.633	4452	2.571	0.27390	25.886	0.3690	4617	18.950	178.3	0.87	0.41
COMBUSTOR	0	33	26 3														
56.455	47.198	3610	555.9(1268)	1.2616	22.691	3159											
56.455	10.844	2616	157.5(882)	1.2980	22.701	2727	1.637	4465	2.572	0.27193	25.886	0.3717	4625	18.870	178.7	0.87	0.41
COMBUSTOR	0	34	27 5														
56.535	42.815	3919	555.6(1385)	1.2423	23.002	3244											
56.535	13.919	3112	215.4(1066)	1.2758	23.028	2928	1.409	4126	2.598	0.27498	25.886	0.3675	4630	17.632	178.9	0.87	0.51
COMBUSTOR	0	35	28 3														
56.815	43.339	3909	554.4(1381)	1.2430	22.995	3241											
56.815	13.500	3074	203.6(1051)	1.2773	23.020	2912	1.439	4189	2.596	0.27407	25.886	0.3688	4646	17.844	179.5	0.87	0.51
COMBUSTOR	0	36	29 4														
57.041	44.800	3831	553.4(1352)	1.2482	22.918	3221											
57.041	12.522	2931	181.2(998)	1.2837	22.938	2856	1.511	4316	2.589	0.27365	25.886	0.3693	4657	18.353	179.9	0.87	0.48
COMBUSTOR	0	37	30 5														
57.765	52.033	3513	550.3(1232)	1.2670	22.611	3129											
57.765	9.390	2397	109.6(802)	1.3068	22.618	2624	1.790	4696	2.556	0.26931	25.886	0.3753	4681	19.655	180.8	0.87	0.39

3/03/75

READING = 0071 BLOCK = 177 TIME = 266.738 MACH 6.0 PT = 742.249 TT = 2916.0

RAMJET PERFORMANCE

S U M M A R Y R E P O R T

394

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	M	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	742.249	2916	644.9(771)	1.2959	28.898	2550											
0.000	0.377	389	-35.5(94)	1.3986	28.897	968	6.029	5835	1.820	0.10565	25.205	0.9315	4661	9.580	184.9		
SPIKE TIP NS		2	0 5														
0.600	18.112	2916	644.9(771)	1.2958	28.897	2550											
0.600	16.443	2852	625.7(752)	1.2979	28.897	2524	0.388	980	2.075	0.10565	25.205	0.9315	4691	1.609	186.1		
WIND TUNNEL		3	0 0														
0.000	742.249	2916	644.9(771)	1.2959	28.898	2550											
0.000	0.381	391	-35.2(94)	1.3986	28.897	969	6.018	5834	1.820	0.10646	25.400	0.9315	4697	9.652	184.9		
SPIKE TIP NS		4	0 0														
0.600	18.112	2916	644.9(771)	1.2958	28.897	2550											
0.600	16.414	2851	625.4(752)	1.2979	28.897	2523	0.392	989	2.075	0.10646	25.400	0.9315	4697	1.636	184.9		
INLET THROAT		5	0 4														
40.400	197.281	2797	609.4(736)	1.2997	28.897	2501											
40.400	17.340	1546	254.7(384)	1.3460	28.897	1892	2.227	4213	1.898	0.88373	25.205	0.1114	3795	57.859	150.6		
INLET UPNRSK		6	0 3														
40.400	197.281	2797	609.4(736)	1.2997	28.897	2501											
40.400	14.789	1484	238.1(367)	1.3494	28.897	1856	2.322	4310	1.898	0.80339	25.205	0.1225	3841	53.814	152.4		
INLET DNNRSK		7	0 4														
40.400	107.605	2797	609.4(736)	1.2997	28.897	2501											
40.400	90.580	2688	576.9(704)	1.3031	28.897	2455	0.519	1275	1.940	0.80339	25.205	0.1225	3841	15.918	152.4		
COMBUSTOR	0	8	1 4														
40.410	196.881	2797	609.4(736)	1.2997	28.897	2501											
40.410	17.360	1547	255.0(384)	1.3459	28.897	1893	2.225	4211	1.898	0.88362	25.205	0.1114	3794	57.826	150.5		
COMBUSTOR	0	9	2 4														
41.310	160.585	2785	605.6(732)	1.3001	28.897	2496											
41.310	20.109	1683	291.8(421)	1.3390	28.897	1969	2.012	3963	1.911	0.88520	25.205	0.1112	3677	54.512	145.9		
COMBUSTOR	0	10	3 4														
41.375	158.432	2784	605.3(732)	1.3001	28.897	2495											
41.375	20.369	1694	294.6(424)	1.3385	28.897	1975	1.996	3942	1.912	0.88654	25.205	0.1110	3668	54.316	145.5		
COMBUSTOR	0	11	4 4														
41.500	153.976	2781	604.6(731)	1.3002	28.897	2494											
41.500	20.829	1714	300.2(429)	1.3376	28.897	1986	1.965	3903	1.914	0.88674	25.205	0.1110	3650	53.784	144.8		
COMBUSTOR	0	12	5 5														
42.460	133.061	2763	599.1(726)	1.3008	28.897	2487											
42.460	23.019	1810	326.5(456)	1.3335	28.897	2038	1.812	3693	1.922	0.87804	25.205	0.1121	3554	50.391	141.0		
COMBUSTOR	0	13	6 3														
44.095	117.978	2726	588.0(715)	1.3019	28.897	2471											
44.095	23.773	1853	338.3(467)	1.3318	28.897	2061	1.715	3534	1.926	0.84786	25.205	0.1161	3476	46.571	137.9		
COMBUSTOR	0	14	7 3														
44.310	116.770	2720	586.4(714)	1.3021	28.897	2469											
44.310	23.890	1856	339.2(468)	1.3317	28.897	2062	1.706	3517	1.926	0.84638	25.205	0.1163	3467	46.262	137.5		
COMBUSTOR	0	15	8 3														
44.800	115.099	2707	582.5(710)	1.3025	28.897	2463											
44.800	23.928	1854	338.6(468)	1.3318	28.897	2061	1.695	3494	1.926	0.84308	25.205	0.1167	3452	45.776	137.0		
COMBUSTOR	0	16	9 3														
44.810	115.085	2707	582.5(710)	1.3025	28.897	2463											
44.810	23.928	1854	338.5(468)	1.3318	28.897	2061	1.695	3493	1.926	0.84309	25.205	0.1167	3452	45.772	137.0		
COMBUSTOR	0	17	10 14														
46.250	86.915	2579	604.9(784)	1.3119	24.617	2614											
46.250	38.672	2122	452.6(632)	1.3275	24.617	2385	1.157	2760	2.196	0.80545	25.546	0.1238	3425	34.553	134.1	0.44	0.04
COMBUSTOR	0	18	11 2														
46.260	86.842	2581	604.6(784)	1.3118	24.620	2615											
46.260	38.965	2126	453.0(634)	1.3273	24.620	2387	1.155	2756	2.197	0.80495	25.546	0.1239	3425	34.480	134.1	0.44	0.04

Reading 71

t = 266.74 sec.

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1774.	(LBF)
MEASURED THRUST	1847.	(LBF)
CALCULATED SPECIFIC IMPULSE	1706.	(LBF*SEC/LBM)
MEASURED SPECIFIC IMPULSE	1777.	(LBF*SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.7221	
MEASURED THRUST COEFFICIENT	0.7522	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	6523.	(LBF)
NET THRUST	1838.	(LBF)
SPECIFIC IMPULSE	1768.	(LBF*SEC/LBM)
THRUST COEFFICIENT	0.7486	

MOMENTUM AND FORCES

INLET FRICTION DRAG	129.7	(LBF)
INLET MOMENTUM CHANGE	-888.5	(LBF)
COMBUSTOR FRICTION DRAG	245.4	(LBF)
COMBUSTOR STRUT DRAG	7.26	(LBF)
COMBUSTOR MOMENTUM CHANGE	1408.	(LBF)
NOZZLE FRICTION DRAG	46.77	(LBF)
NOZZLE STRUT DRAG	0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1254.	(LBF)
NOZZLE PRESSURE INTEGRAL	1300.	(LBF)
EXTERNAL FRICTION DRAG	67.18	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1021.	(LBF)
TOTAL EXTERNAL DRAG	-1089.	(LBF)
TOTAL STRUT DRAG	7.26	(LBF)
CAVITY FORCE	-1167.	(LBF)
CALCULATED LOAD CELL FORCE	-482.	(LBF)
MEASURED LOAD CELL FORCE	-407.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	-167.4, -139.6,	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3148	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.199	(IN)
NOZZLE SHROUD TRAILING EDGE	73.539	(IN)
NOZZLE PLUG TRAILING EDGE	87.291	(IN)
STRUT LEADING EDGE	56.455	(IN)
STRUT TRAILING EDGE	65.055	(IN)
COMBUSTOR EXIT	65.055	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.9314	
ADDITIVE DRAG COEFFICIENT	0.0053	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1425	
DELTA PT2	0.1167	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.2616	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1448	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8733	
INLET PROCESS EFFICIENCY - SUBSONIC	0.9000	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.8972	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8618	
ENTHALPY AT P0 - SUPERSONIC	1.93	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	26.04	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0412	
EQUIVALENCE RATIO	1.333	
COMBUSTOR EFFICIENCY	0.632	
TOTAL PRESSURE RATIO	0.2101	
COMBUSTOR EFFECTIVENESS	0.8154	
INJECTOR DISCHARGE COEFFICIENTS	0.7807,	0.7648,

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9540	
NOZZLE COEFFICIENT - CT	0.8749	
PROCESS EFFICIENCY	0.9010	
KINETIC ENERGY EFFICIENCY	0.8974	

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	
1B	41.300	
1C	44.300	
2A	48.775	D
2C	46.250	E
3A	54.065	
3B	56.250	
4	44.800	

READING = 0071 BLOCK = 157 TIME = 248.738 MACH 6.0 P1 = 742.749 T1 = 2917.3

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.297E 02	1.297E 02	2.385E-03	4.475E-02
4.041E 01	1.626E-01	1.299E 02	2.386E-03	4.477E-02
4.131E 01	1.458E 01	1.445E 02	2.503E-03	4.776E-02
4.137E 01	1.054E 00	1.455E 02	2.512E-03	4.804E-02
4.150E 01	2.032E 00	1.476E 02	2.528E-03	4.847E-02
4.246E 01	1.538E 01	1.629E 02	2.573E-03	4.914E-02
4.409E 01	2.564E 01	1.886E 02	2.520E-03	4.621E-02
4.431E 01	3.306E 00	1.919E 02	2.501E-03	4.579E-02
4.480E 01	7.648E 00	1.995E 02	2.576E-03	6.110E-02
4.481E 01	1.503E-01	1.997E 02	2.455E-03	4.478E-02
4.625E 01	1.938E 01	2.191E 02	3.452E-03	5.751E-02
4.626E 01	9.410E-02	2.192E 02	2.894E-03	7.045E-02
4.731E 01	7.852E 00	2.270E 02	2.950E-03	6.442E-02
4.733E 01	1.609E-01	2.272E 02	2.927E-03	6.492E-02
4.811E 01	5.100E 00	2.323E 02	2.814E-03	6.952E-02
4.877E 01	5.598E 00	2.379E 02	3.368E-03	5.972E-02
4.878E 01	9.532E-02	2.380E 02	2.915E-03	7.031E-02
4.931E 01	4.856E 00	2.428E 02	2.814E-03	6.980E-02
5.072E 01	1.392E 01	2.567E 02	2.758E-03	5.906E-02
5.282E 01	2.073E 01	2.775E 02	2.796E-03	5.009E-02
5.332E 01	4.796E 00	2.823E 02	2.966E-03	4.624E-02
5.407E 01	7.253E 00	2.895E 02	2.969E-03	4.306E-02
5.483E 01	7.274E 00	2.968E 02	2.957E-03	3.989E-02
5.576E 01	8.636E 00	3.054E 02	2.933E-03	3.775E-02
5.626E 01	2.860E 00	3.083E 02	2.915E-03	3.415E-02
5.631E 01	4.259E-01	3.087E 02	3.086E-03	2.813E-02
5.645E 01	1.121E 00	3.098E 02	2.928E-03	2.925E-02
5.653E 01	6.448E-01	3.105E 02	3.285E-03	3.007E-02
5.681E 01	2.240E 00	3.127E 02	3.079E-03	3.137E-02
5.704E 01	1.784E 00	3.145E 02	3.056E-03	3.017E-02
5.776E 01	5.946E 00	3.205E 02	2.969E-03	2.536E-02
5.878E 01	8.631E 00	3.291E 02	2.739E-03	1.876E-02
6.079E 01	1.527E 01	3.444E 02	2.462E-03	3.456E-02
6.221E 01	1.029E 01	3.546E 02	2.959E-03	3.404E-02
6.468E 01	1.799E 01	3.726E 02	3.140E-03	3.406E-02
6.505E 01	2.481E 00	3.751E 02	3.293E-03	3.187E-02
6.509E 01	2.556E-01	3.754E 02	3.379E-03	3.223E-02
6.529E 01	1.299E 00	3.767E 02	3.376E-03	3.209E-02
6.695E 01	1.113E 01	3.878E 02	3.255E-03	2.376E-02
6.742E 01	4.171E 00	3.920E 02	3.228E-03	2.153E-02
6.839E 01	4.388E 00	3.964E 02	3.168E-03	1.640E-02
6.911E 01	3.526E 00	3.999E 02	3.126E-03	1.342E-02
6.972E 01	2.629E 00	4.025E 02	3.097E-03	1.153E-02
7.067E 01	3.559E 00	4.061E 02	3.057E-03	9.310E-03
7.110E 01	1.457E 00	4.075E 02	3.047E-03	8.769E-03
7.263E 01	4.790E 00	4.123E 02	3.022E-03	7.663E-03
7.278E 01	4.159E-01	4.127E 02	3.011E-03	7.257E-03
7.353E 01	1.749E 00	4.145E 02	2.946E-03	5.159E-03
7.354E 01	2.888E-03	4.145E 02	2.946E-03	5.127E-03
7.486E 01	1.039E 00	4.155E 02	2.988E-03	6.759E-03
7.771E 01	2.368E 00	4.179E 02	3.008E-03	8.201E-03
8.161E 01	2.479E 00	4.204E 02	2.945E-03	6.413E-03
8.442E 01	1.056E 00	4.214E 02	2.888E-03	4.946E-03
8.728E 01	4.542E-01	4.219E 02	2.934E-03	6.937E-03
8.729E 01	0.000	4.219E 02	2.934E-03	6.941E-03

XABS	P-IB	P-OB	PDA	QDX	Q-IB	Q-OB	CANALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.505E 01	2.047E 01	2.061E 01	1.062E 03	-5.726E 03	-2.587E 03	-3.139E 03	4.337E 03	5.426E 01	2.757E-02	5.463E 01	2.775E-02
6.509E 01	2.047E 01	2.066E 01	1.062E 03	-5.732E 03	-2.590E 03	-3.142E 03	4.342E 03	5.426E 01	2.757E-02	5.476E 01	2.782E-02
6.529E 01	1.950E 01	2.092E 01	1.062E 03	-5.763E 03	-2.605E 03	-3.158E 03	4.368E 03	5.168E 01	2.626E-02	5.546E 01	2.817E-02
6.695E 01	1.142E 01	9.110E 00	1.231E 03	-5.978E 03	-2.709E 03	-3.268E 03	4.583E 03	3.027E 01	1.538E-02	2.414E 01	1.227E-02
6.762E 01	8.168E 00	8.910E 00	1.421E 03	-6.044E 03	-2.740E 03	-3.304E 03	4.665E 03	2.165E 01	1.100E-02	2.361E 01	1.200E-02
6.839E 01	4.430E 00	6.869E 00	1.616E 03	-6.112E 03	-2.768E 03	-3.345E 03	4.760E 03	1.174E 01	5.964E-03	1.820E 01	9.248E-03
6.911E 01	3.456E 00	4.960E 00	1.741E 03	-6.172E 03	-2.788E 03	-3.384E 03	4.848E 03	9.158E 00	4.652E-03	1.315E 01	6.678E-03
6.972E 01	2.630E 00	4.156E 00	1.822E 03	-6.218E 03	-2.802E 03	-3.416E 03	4.922E 03	6.970E 00	3.541E-03	1.102E 01	5.596E-03
7.067E 01	2.138E 00	2.905E 00	1.915E 03	-6.281E 03	-2.820E 03	-3.462E 03	5.036E 03	5.666E 00	2.878E-03	7.699E 00	3.911E-03
7.110E 01	1.915E 00	2.733E 00	1.949E 03	-6.306E 03	-2.826E 03	-3.480E 03	5.088E 03	5.075E 00	2.578E-03	7.243E 00	3.679E-03
7.263E 01	1.760E 00	2.120E 00	2.049E 03	-6.372E 03	-2.845E 03	-3.527E 03	5.273E 03	4.665E 00	2.370E-03	5.619E 00	2.854E-03
7.278E 01	1.745E 00	1.863E 00	2.057E 03	-6.378E 03	-2.847E 03	-3.531E 03	5.290E 03	4.625E 00	2.349E-03	4.938E 00	2.509E-03
7.353E 01	1.711E 00	5.800E-01	2.105E 03	-6.406E 03	-2.855E 03	-3.551E 03	5.374E 03	4.534E 00	2.303E-03	1.537E 00	7.809E-04
7.354E 01	1.711E 00	5.732E-01	2.106E 03	-6.407E 03	-2.855E 03	-3.552E 03	5.375E 03	4.534E 00	2.303E-03	1.519E 00	7.717E-04
7.486E 01	1.650E 00	0.000	2.142E 03	-6.461E 03	-2.868E 03	-3.593E 03	5.427E 03	4.373E 00	2.221E-03	0.000	0.000
7.771E 01	2.155E 00	0.000	2.218E 03	-6.485E 03	-2.892E 03	-3.593E 03	5.525E 03	5.711E 00	2.901E-03	0.000	0.000
8.161E 01	1.565E 00	0.000	2.297E 03	-6.510E 03	-2.917E 03	-3.593E 03	5.630E 03	4.148E 00	2.107E-03	0.000	0.000
8.442E 01	1.135E 00	0.000	2.327E 03	-6.533E 03	-2.940E 03	-3.593E 03	5.684E 03	3.008E 00	1.528E-03	0.000	0.000
8.728E 01	1.760E 00	0.000	2.362E 03	-6.569E 03	-2.976E 03	-3.593E 03	5.707E 03	4.665E 00	2.370E-03	0.000	0.000
8.729E 01	1.761E 00	0.000	2.362E 03	-6.569E 03	-2.976E 03	-3.593E 03	5.707E 03	4.668E 00	2.371E-03	0.000	0.000

XABS	P-IB	P-OB	POA	POX	Q-IP	Q-OB	CAMALL	P-IB/PS0	P-IB/PT0	P-OB/PS0	P-OB/PT0
0.981E-01	1.040E 00	0.000	-4.412E-01	0.000	0.000	0.000	2.470E-02	2.756E 00	1.400E-03	0.000	0.000
1.836E 01	1.040E 00	0.000	-3.463E 01	0.000	0.000	0.000	1.654E 02	2.756E 00	1.400E-03	0.000	0.000
3.070E 01	3.025E 00	0.000	-1.994E 02	0.000	0.000	0.000	5.053E 02	8.017E 00	4.073E-03	0.000	0.000
3.508E 01	3.884E 00	0.000	-4.233E 02	0.000	0.000	0.000	6.804E 02	1.029E 01	5.229E-03	0.000	0.000
3.519E 01	4.195E 00	5.571E 00	-4.879E 02	0.000	0.000	0.000	6.854E 02	1.112E 01	5.648E-03	1.476E 01	7.500E-03
3.520E 01	4.212E 00	5.546E 00	-4.880E 02	0.000	0.000	0.000	6.857E 02	1.116E 01	5.670E-03	1.470E 01	7.467E-03
3.555E 01	5.180E 00	4.111E 00	-5.004E 02	0.000	0.000	0.000	7.209E 02	1.373E 01	6.974E-03	1.090E 01	5.535E-03
3.586E 01	5.069E 00	2.825E 00	-5.203E 02	-5.594E 02	-5.594E 02	0.000	7.529E 02	1.343E 01	6.824E-03	7.487E 00	3.803E-03
3.606E 01	5.000E 00	3.889E 00	-5.331E 02	-5.657E 02	-5.657E 02	0.000	7.729E 02	1.325E 01	6.732E-03	1.031E 01	5.237E-03
3.648E 01	4.227E 00	6.180E 00	-5.512E 02	-5.795E 02	-5.795E 02	0.000	8.164E 02	1.120E 01	5.692E-03	1.638E 01	8.320E-03
3.701E 01	5.290E 00	9.070E 00	-5.729E 02	-6.122E 02	-5.977E 02	-1.451E 01	8.726E 02	1.402E 01	7.122E-03	2.404E 01	1.221E-02
3.732E 01	5.000E 00	1.079E 01	-5.853E 02	-6.284E 02	-6.090E 02	-1.936E 01	9.063E 02	1.325E 01	6.732E-03	2.859E 01	1.452E-02
3.803E 01	4.350E 00	1.445E 01	-6.010E 02	-6.656E 02	-6.356E 02	-2.995E 01	9.834E 02	1.153E 01	5.857E-03	3.830E 01	1.946E-02
3.834E 01	8.073E 00	1.609E 01	-6.064E 02	-6.830E 02	-6.483E 02	-3.463E 01	1.018E 03	2.140E 01	1.087E-02	4.264E 01	2.166E-02
3.879E 01	1.287E 01	1.756E 01	-6.281E 02	-7.067E 02	-6.661E 02	-4.060E 01	1.064E 03	3.410E 01	1.732E-02	4.655E 01	2.365E-02
3.881E 01	1.363E 01	1.780E 01	-6.320E 02	-7.106E 02	-6.691E 02	-4.155E 01	1.072E 03	3.613E 01	1.835E-02	4.718E 01	2.397E-02
3.901E 01	1.594E 01	1.766E 01	-6.433E 02	-7.227E 02	-6.783E 02	-4.441E 01	1.094E 03	4.225E 01	2.146E-02	4.680E 01	2.377E-02
3.932E 01	1.869E 01	1.742E 01	-6.645E 02	-7.431E 02	-6.942E 02	-4.898E 01	1.130E 03	4.954E 01	2.517E-02	4.618E 01	2.346E-02
3.950E 01	2.022E 01	1.312E 01	-6.775E 02	-7.550E 02	-7.035E 02	-5.150E 01	1.150E 03	5.360E 01	2.723E-02	3.476E 01	1.766E-02
3.981E 01	1.800E 01	5.375E 00	-7.052E 02	-7.771E 02	-7.211E 02	-5.596E 01	1.187E 03	4.770E 01	2.423E-02	1.425E 01	7.237E-03
4.000E 01	1.669E 01	5.123E 00	-7.222E 02	-7.906E 02	-7.321E 02	-5.853E 01	1.209E 03	4.424E 01	2.247E-02	1.350E 01	6.858E-03
4.040E 01	1.978E 01	4.580E 00	-7.587E 02	-8.213E 02	-7.571E 02	-6.425E 01	1.256E 03	5.242E 01	2.663E-02	1.214E 01	6.167E-03
4.041E 01	1.986E 01	4.567E 00	-7.596E 02	-8.221E 02	-7.577E 02	-6.440E 01	1.257E 03	5.263E 01	2.673E-02	1.210E 01	6.148E-03
4.131E 01	2.681E 01	3.345E 00	-8.607E 02	-9.074E 02	-8.205E 02	-8.688E 01	1.363E 03	7.105E 01	3.609E-02	8.864E 00	4.503E-03
4.137E 01	2.731E 01	3.256E 00	-8.688E 02	-9.146E 02	-8.254E 02	-8.919E 01	1.371E 03	7.238E 01	3.677E-02	8.630E 00	4.384E-03
4.150E 01	2.827E 01	5.227E 00	-8.841E 02	-9.288E 02	-8.350E 02	-9.385E 01	1.386E 03	7.494E 01	3.807E-02	1.385E 01	7.038E-03
4.246E 01	2.066E 01	2.034E 01	-9.323E 02	-1.055E 03	-9.154E 02	-1.396E 02	1.501E 03	5.476E 01	2.782E-02	5.392E 01	2.739E-02
4.409E 01	4.374E 01	4.608E 01	-8.934E 02	-1.317E 03	-1.073E 03	-2.436E 02	1.699E 03	1.159E 02	5.890E-02	1.221E 02	6.205E-02
4.431E 01	4.678E 01	4.809E 01	-8.897E 02	-1.358E 03	-1.096E 03	-2.620E 02	1.725E 03	1.240E 02	6.298E-02	1.274E 02	6.474E-02
4.480E 01	5.370E 01	5.265E 01	-8.830E 02	-1.479E 03	-1.188E 03	-3.305E 02	1.785E 03	1.423E 02	7.230E-02	1.395E 02	7.088E-02
4.481E 01	5.378E 01	5.274E 01	-8.829E 02	-1.482E 03	-1.189E 03	-3.323E 02	1.786E 03	1.425E 02	7.241E-02	1.398E 02	7.101E-02
4.625E 01	6.587E 01	6.615E 01	-7.754E 02	-1.976E 03	-1.303E 03	-6.736E 02	1.963E 03	1.746E 02	8.868E-02	1.753E 02	8.906E-02
4.626E 01	6.595E 01	6.624E 01	-7.744E 02	-1.980E 03	-1.304E 03	-6.766E 02	1.964E 03	1.748E 02	8.879E-02	1.756E 02	8.919E-02
4.731E 01	7.476E 01	7.602E 01	-6.030E 02	-2.397E 03	-1.411E 03	-9.866E 02	2.094E 03	1.981E 02	1.007E-01	2.015E 02	1.023E-01
4.733E 01	7.473E 01	7.625E 01	-5.999E 02	-2.407E 03	-1.413E 03	-9.940E 02	2.097E 03	1.981E 02	1.006E-01	2.021E 02	1.027E-01
4.811E 01	7.365E 01	6.176E 01	-4.347E 02	-2.700E 03	-1.489E 03	-1.210E 03	2.194E 03	1.952E 02	9.916E-02	1.690E 02	8.584E-02
4.877E 01	5.305E 01	5.305E 01	-2.546E 02	-2.926E 03	-1.553E 03	-1.375E 03	2.277E 03	1.406E 02	7.142E-02	1.406E 02	7.142E-02
4.878E 01	5.289E 01	5.289E 01	-2.520E 02	-2.931E 03	-1.554E 03	-1.377E 03	2.278E 03	1.402E 02	7.120E-02	1.402E 02	7.120E-02
4.931E 01	4.435E 01	4.435E 01	-1.177E 02	-3.097E 03	-1.604E 03	-1.493E 03	2.345E 03	1.175E 02	5.970E-02	1.175E 02	5.970E-02
5.072E 01	2.957E 01	2.957E 01	1.556E 02	-3.483E 03	-1.730E 03	-1.753E 03	2.522E 03	7.837E 01	3.981E-02	7.837E 01	3.981E-02
5.282E 01	2.400E 01	2.400E 01	4.505E 02	-3.957E 03	-1.906E 03	-2.051E 03	2.789E 03	6.361E 01	3.231E-02	6.361E 01	3.231E-02
5.332E 01	2.349E 01	2.349E 01	5.122E 02	-4.058E 03	-1.946E 03	-2.113E 03	2.852E 03	6.225E 01	3.162E-02	6.225E 01	3.162E-02
5.407E 01	2.108E 01	2.108E 01	5.984E 02	-4.206E 03	-2.003E 03	-2.203E 03	2.948E 03	5.586E 01	2.838E-02	5.586E 01	2.838E-02
5.483E 01	1.864E 01	1.864E 01	6.754E 02	-4.348E 03	-2.060E 03	-2.288E 03	3.046E 03	4.939E 01	2.509E-02	4.939E 01	2.509E-02
5.576E 01	1.713E 01	1.713E 01	7.584E 02	-4.510E 03	-2.126E 03	-2.385E 03	3.164E 03	4.540E 01	2.306E-02	4.540E 01	2.306E-02
5.626E 01	1.632E 01	1.632E 01	9.514E 02	-4.588E 03	-2.156E 03	-2.433E 03	3.209E 03	4.324E 01	2.197E-02	4.324E 01	2.197E-02
5.631E 01	9.112E 00	1.623E 01	9.560E 02	-4.596E 03	-2.158E 03	-2.438E 03	3.216E 03	2.415E 01	1.227E-02	4.301E 01	2.185E-02
5.645E 01	9.112E 00	1.600E 01	9.665E 02	-4.616E 03	-2.165E 03	-2.451E 03	3.234E 03	2.415E 01	1.227E-02	4.240E 01	2.154E-02
5.653E 01	1.587E 01	1.587E 01	9.729E 02	-4.627E 03	-2.169E 03	-2.458E 03	3.245E 03	4.206E 01	2.136E-02	4.206E 01	2.136E-02
5.681E 01	1.541E 01	1.541E 01	9.933E 02	-4.666E 03	-2.182E 03	-2.484E 03	3.280E 03	4.085E 01	2.075E-02	4.085E 01	2.075E-02
5.704E 01	1.419E 01	1.419E 01	1.008E 03	-4.697E 03	-2.193E 03	-2.504E 03	3.309E 03	3.762E 01	1.911E-02	3.762E 01	1.911E-02
5.776E 01	1.029E 01	1.029E 01	1.041E 03	-4.792E 03	-2.225E 03	-2.567E 03	3.402E 03	2.727E 01	1.385E-02	2.727E 01	1.385E-02
5.878E 01	6.037E 00	6.037E 00	1.060E 03	-4.916E 03	-2.267E 03	-2.650E 03	3.532E 03	1.600E 01	8.129E-03	1.600E 01	8.129E-03
6.079E 01	1.320E 01	1.320E 01	1.062E 03	-5.153E 03	-2.343E 03	-2.810E 03	3.790E 03	3.498E 01	1.777E-02	3.498E 01	1.777E-02
6.221E 01	1.690E 01	1.690E 01	1.062E 03	-5.323E 03	-2.405E 03	-2.918E 03	3.972E 03	4.479E 01	2.275E-02	4.479E 01	2.275E-02
6.468E 01	2.012E 01	2.012E 01	1.062E 03	-5.666E 03	-2.558E 03	-3.108E 03	4.289E 03	5.332E 01	2.709E-02	5.332E 01	2.709E-02

READING = 0071 BLOCK = 157 TIME = 248.736 MACH 6.0 PI = 702.749 TT = 2917.3

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	A	A/AC	MON/P	G	IVAC	PHI	ETAC
COMBUSTOR	0	38	31 7														
58.785	97.965	3184	566.6(1245)	1.2868	19.799	3208											
58.785	6.037	1631	=87.6(596)	1.3444	19.801	2546	2.439	5722	2.722	0.27145	26.259	0.3777	5254	24.137	200.1	1.33	0.24
COMBUSTOR	0	39	32 6														
60.795	55.404	4091	557.6(1628)	1.2348	20.601	3497											
60.795	13.200	3080	76.4(1176)	1.2769	20.637	3078	1.594	4907	2.646	0.28090	26.259	0.3650	5259	21.422	199.5	1.33	0.45
COMBUSTOR	0	40	33 4														
62.215	49.732	4384	551.2(1754)	1.2117	20.888	3556											
62.215	16.900	3542	142.8(1394)	1.2509	20.962	3264	1.385	4520	2.867	0.28851	26.259	0.3553	5228	20.268	199.1	1.33	0.53
COMBUSTOR	0	41	34 4														
64.679	44.403	4614	538.1(1853)	1.1886	21.154	3592											
64.679	20.120	4061	216.2(1597)	1.2184	21.255	3402	1.180	4013	2.886	0.27348	26.259	0.3749	5208	17.057	198.5	1.33	0.61
COMBUSTOR	0	42	35 4														
65.055	40.816	4676	535.8(1880)	1.1808	21.198	3599											
65.055	20.543	4213	250.7(1664)	1.2049	21.330	3440	1.098	3777	2.896	0.25425	26.259	0.4032	5205	14.925	198.2	1.33	0.63
COMBUSTOR REGEN		43	36 21														
65.055	40.816	4745	587.8(1912)	1.1762	21.160	3621											
65.055	23.229	4372	347.1(1738)	1.1940	21.287	3492	0.994	3470	2.907	0.25425	26.259	0.4032	5231	15.711	199.2	1.33	0.63
NOZZLE AE		44	37 5														
87.291	40.816	4676	535.8(1860)	1.1808	21.198	3599											
87.291	1.200	2378	=607.7(864)	1.2914	21.427	2669	2.834	7565	2.896	0.05293	26.259	1.9371	6769	6.222	257.8	1.33	0.63
NOZZLE PO		45	38 5														
87.291	40.816	4676	535.8(1860)	1.1808	21.198	3599											
87.291	0.377	1817	=831.7(640)	1.3149	21.427	2355	3.513	8272	2.896	0.02382	26.259	4.3045	7168	3.062	273.0	1.33	0.63
NOZZLE AE REGEN		46	39 5														
87.291	40.816	4745	587.8(1912)	1.1762	21.160	3621											
87.291	1.228	2455	=575.9(895)	1.2885	21.427	2709	2.817	7631	2.907	0.05293	26.259	1.9371	6837	6.276	260.4	1.33	0.63
NOZZLE PO REGEN		47	40 5														
87.291	40.816	4745	587.8(1912)	1.1762	21.160	3621											
87.291	0.377	1869	=811.4(660)	1.3124	21.427	2386	3.507	8367	2.907	0.02342	26.259	4.3780	7252	3.045	276.2	1.33	0.63
FICTIVE COMBUSTR		67	60 0														
65.055	194.299	5232	535.8(2125)	1.1793	21.707	3759											
65.055	0.377	1447	=1217.9(492)	1.3286	21.974	2086	4.491	9368	2.757	0.03473	26.259	2.9520	7931	5.056	302.0	1.33	1.00
FICTIVE NOZZLE		68	61 0														
87.291	27.142	4605	503.7(1847)	1.1788	21.195	3569											
87.291	1.452	2675	=484.0(987)	1.2806	21.427	2819	2.494	7030	2.927	0.05293	26.259	1.9371	6458	5.782	245.9	1.33	0.63

READING = 0071 BLOCK = 157 TIME = 248.738 MACH 6.0 P1 = 742.749 T1 = 2917.3 PAGE 2

	P	T	M	GAMMA	MOLWT	SONV	MACH	VEL	S	M/A	W	A/AC	PUMTM	Q	IVAC	PMI	ETAC
COMBUSTOR	0	19	12 21														
47.310	94.114	2374	603.6(769)	1.3224	22.783	2617											
47.310	75.391	2248	559.1(724)	1.3267	22.783	2551	0.586	1496	2.290	0.75463	25.738	0.1332	3768	17.540	146.4	0.67	0.00
COMBUSTOR	0	20	13 21														
47.335	94.183	2366	605.4(766)	1.3227	22.777	2613											
47.335	75.489	2241	558.9(722)	1.3270	22.777	2548	0.585	1491	2.284	0.75378	25.738	0.1333	3771	17.471	146.5	0.67	0.00
COMBUSTOR	0	21	14 5														
48.110	90.229	2763	592.0(902)	1.3042	23.158	2781											
48.110	68.705	2592	529.4(840)	1.3099	23.158	2700	0.656	1770	2.337	0.70316	25.738	0.1429	3931	19.342	152.7	0.67	0.14
COMBUSTOR	0	22	15 9														
48.775	81.747	2615	642.3(1013)	1.3150	19.224	2982											
48.775	53.047	2355	531.3(903)	1.3239	19.224	2840	0.830	2357	2.686	0.66059	26.259	0.1552	4032	24.198	153.6	1.33	0.09
COMBUSTOR	0	23	16 2														
48.785	81.670	2620	642.2(1015)	1.3148	19.229	2985											
48.785	52.886	2359	530.5(905)	1.3237	19.229	2841	0.832	2365	2.687	0.65973	26.259	0.1554	4035	24.246	153.7	1.33	0.09
COMBUSTOR	0	24	17 4														
49.315	77.943	2881	635.9(1122)	1.3026	19.436	3098											
49.315	44.346	2522	480.3(968)	1.3147	19.437	2912	0.958	2790	2.722	0.61700	26.259	0.1662	4165	26.754	158.6	1.33	0.15
COMBUSTOR	0	25	18 4														
50.725	72.582	3182	621.2(1246)	1.2882	19.699	3216											
50.725	29.569	2588	360.6(990)	1.3083	19.700	2923	1.235	3611	2.758	0.52586	26.259	0.1950	4424	29.511	168.5	1.33	0.22
COMBUSTOR	0	26	19 5														
52.825	64.558	3559	603.2(1404)	1.2687	20.043	3347											
52.825	24.000	2864	289.0(1099)	1.2934	20.049	3031	1.308	3965	2.799	0.43100	26.259	0.2379	4698	26.556	178.9	1.33	0.31
COMBUSTOR	0	27	20 4														
53.325	62.612	3660	599.3(1447)	1.2631	20.137	3378											
53.325	23.487	2961	279.9(1139)	1.2885	20.146	3069	1.303	3998	2.809	0.41339	26.259	0.2480	4755	25.684	181.1	1.33	0.33
COMBUSTOR	0	28	21 4														
54.075	61.294	3721	593.7(1472)	1.2595	20.201	3396											
54.075	21.079	2959	244.1(1136)	1.2876	20.211	3061	1.366	4182	2.814	0.38967	26.259	0.2631	4834	25.328	184.1	1.33	0.35
COMBUSTOR	0	29	22 3														
54.835	60.674	3759	588.3(1480)	1.2582	20.227	3401											
54.835	18.637	2902	204.7(1111)	1.2892	20.238	3032	1.445	4381	2.816	0.36849	26.259	0.2782	4904	25.088	186.7	1.33	0.35
COMBUSTOR	0	30	23 4														
55.760	58.834	3814	582.1(1511)	1.2536	20.304	3422											
55.760	17.131	2934	176.3(1122)	1.2869	20.319	3039	1.483	4506	2.823	0.34599	26.259	0.2963	4978	24.230	189.6	1.33	0.37
COMBUSTOR	0	31	24 5														
56.260	47.193	4290	579.1(1715)	1.2195	20.744	3541											
56.260	16.316	3506	183.6(1360)	1.2570	20.802	3245	1.371	4449	2.871	0.27874	26.259	0.3678	5168	19.271	196.8	1.33	0.49
COMBUSTOR	0	32	25 5														
56.315	52.446	3957	578.8(1572)	1.2441	20.438	3461											
56.315	12.670	2941	104.8(1122)	1.2844	20.463	3029	1.608	4870	2.843	0.27785	26.259	0.3690	5172	21.030	197.0	1.33	0.41
COMBUSTOR	0	33	26 3														
56.455	52.291	3967	578.1(1576)	1.2435	20.448	3463											
56.455	12.556	2945	101.3(1124)	1.2841	20.473	3031	1.612	4884	2.844	0.27586	26.259	0.3717	5182	20.940	197.3	1.33	0.41
COMBUSTOR	0	34	27 6														
56.535	47.961	4280	577.6(1711)	1.2204	20.738	3539											
56.535	15.869	3465	168.4(1342)	1.2590	20.795	3229	1.401	4526	2.869	0.27894	26.259	0.3675	5167	19.618	197.5	1.33	0.49
COMBUSTOR	0	35	28 3														
56.815	48.517	4271	576.2(1707)	1.2212	20.732	3537											
56.815	15.412	3426	154.4(1326)	1.2608	20.789	3214	1.429	4594	2.867	0.27802	26.259	0.3688	5205	19.850	198.2	1.33	0.49
COMBUSTOR	0	36	29 4														
57.041	50.280	4177	575.0(1666)	1.2286	20.647	3515											
57.041	14.194	3251	124.5(1251)	1.2695	20.692	3149	1.508	4748	2.859	0.27760	26.259	0.3693	5218	20.483	198.7	1.33	0.46
COMBUSTOR	0	37	30 5														
57.765	59.716	3784	571.4(1498)	1.2552	20.298	3411											
57.765	10.290	2581	28.1(972)	1.2993	20.312	2865	1.820	5214	2.818	0.27319	26.259	0.3753	5244	22.136	199.7	1.33	0.37

S U M M A R Y R E P O R T

	P	T	H		GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	D	IVAC	PHI	ETAC
WIND TUNNEL		1	0	5														
0.000	742.749	2917	645.3(	771)	1.2959	28.898	2550											
0.000	0.377	390	=35.5(	94)	1.3986	28.897	968	6.028	5637	1.820	0.10572	25.220	0.9314	4665	9.589	185.0		
SPIKE TIP NS		2	0	5														
0.600	18.125	2917	645.3(	771)	1.2958	28.897	2550											
0.600	16.454	2853	626.1(	753)	1.2978	28.897	2524	0.388	980	2.075	0.10572	25.220	0.9314	4694	1.611	186.1		
WIND TUNNEL		3	0	0														
0.000	742.749	2917	645.3(	771)	1.2959	28.898	2550											
0.000	0.381	391	=35.2(	94)	1.3986	28.897	970	6.018	5835	1.820	0.10651	25.409	0.9314	4700	9.659	185.0		
SPIKE TIP NS		4	0	0														
0.600	18.125	2917	645.3(	771)	1.2958	28.897	2550											
0.600	16.425	2852	625.8(	752)	1.2979	28.897	2524	0.392	989	2.075	0.10651	25.409	0.9314	4700	1.637	185.0		
INLET THROAT		5	0	4														
40.400	194.299	2809	612.7(	739)	1.2993	28.897	2506											
40.400	17.610	1565	259.8(	389)	1.3449	28.897	1903	2.208	4202	1.901	0.88424	25.220	0.1114	3796	57.746	150.5		
INLET UPNRSK		6	0	3														
40.400	194.299	2809	612.7(	739)	1.2993	28.897	2506											
40.400	15.011	1502	243.0(	372)	1.3484	28.897	1867	2.304	4301	1.901	0.80385	25.220	0.1225	3843	53.734	152.4		
INLET DNNRSK		7	0	4														
40.400	107.581	2809	612.7(	739)	1.2993	28.897	2506											
40.400	90.436	2698	579.9(	707)	1.3028	28.897	2459	0.521	1282	1.941	0.80385	25.220	0.1225	3843	16.021	152.4		
COMBUSTOR	0	8	1	4														
40.410	193.912	2809	612.7(	739)	1.2993	28.897	2506											
40.410	17.630	1566	260.2(	389)	1.3449	28.897	1904	2.206	4200	1.901	0.88413	25.220	0.1114	3795	57.710	150.5		
COMBUSTOR	0	9	2	4														
41.310	158.785	2797	609.3(	736)	1.2997	28.897	2501											
41.310	20.401	1703	297.0(	426)	1.3381	28.897	1980	1.997	3953	1.913	0.88571	25.220	0.1112	3660	54.412	145.9		
COMBUSTOR	0	10	3	4														
41.375	156.702	2796	609.0(	736)	1.2997	28.897	2501											
41.375	20.664	1713	299.9(	429)	1.3376	28.897	1986	1.981	3933	1.914	0.88705	25.220	0.1110	3670	54.217	145.5		
COMBUSTOR	0	11	4	4														
41.500	152.496	2794	606.5(	735)	1.2998	28.897	2500											
41.500	21.116	1733	305.4(	434)	1.3367	28.897	1997	1.951	3895	1.916	0.88726	25.220	0.1110	3653	53.700	144.8		
COMBUSTOR	0	12	5	3														
42.460	138.441	2778	605.5(	730)	1.3003	28.897	2493											
42.460	22.366	1790	320.9(	450)	1.3343	28.897	2027	1.855	3760	1.921	0.87854	25.220	0.1121	3589	51.338	142.3		
COMBUSTOR	0	13	6	8														
44.095	140.854	2743	593.1(	720)	1.3014	28.897	2478											
44.095	20.376	1717	301.0(	430)	1.3375	28.897	1988	1.923	3823	1.916	0.84835	25.220	0.1161	3603	50.406	142.9		
COMBUSTOR	0	14	7	9														
44.310	141.430	2737	591.5(	719)	1.3016	28.897	2476											
44.310	20.198	1708	298.4(	428)	1.3379	28.897	1983	1.931	3829	1.915	0.84687	25.220	0.1163	3603	50.396	142.9		
COMBUSTOR	0	15	8	21														
44.800	142.676	2721	586.7(	714)	1.3021	28.897	2469											
44.800	19.602	1684	292.0(	421)	1.3390	28.897	1970	1.950	3840	1.912	0.84357	25.220	0.1167	3602	50.344	142.8		
COMBUSTOR	0	16	9	13														
44.810	142.913	2721	586.6(	714)	1.3021	28.897	2469											
44.810	19.760	1685	291.6(	421)	1.3390	28.897	1969	1.951	3842	1.912	0.84358	25.220	0.1167	3602	50.364	142.8		
COMBUSTOR	0	17	10	19														
46.250	93.249	2467	620.1(	801)	1.3186	22.824	2662											
46.250	66.009	2267	548.9(	731)	1.3254	22.824	2559	0.737	1887	2.304	0.81152	25.738	0.1238	3603	23.802	140.0	0.67	0.02
COMBUSTOR	0	18	11	2														
46.260	93.250	2465	619.9(	801)	1.3187	22.823	2661											
46.260	66.097	2267	549.1(	730)	1.3254	22.823	2558	0.736	1883	2.304	0.81102	25.738	0.1239	3604	23.737	140.0	0.67	0.02

Reading 71

t = 248.74 sec.

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	1301.	(LBF)
MEASURED THRUST	1322.	(LBF)
CALCULATED SPECIFIC IMPULSE	1592.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1617.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.5306	
MEASURED THRUST COEFFICIENT	0.5389	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	6153.	(LBF)
NET THRUST	1473.	(LBF)
SPECIFIC IMPULSE	1801.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.6005	

MOMENTUM AND FORCES

INLET FRICTION DRAG	128.1	(LBF)
INLET MOMENTUM CHANGE	-881.4	(LBF)
COMBUSTOR FRICTION DRAG	239.8	(LBF)
COMBUSTOR STRUT DRAG	-3.78	(LBF)
COMBUSTOR MOMENTUM CHANGE	998.	(LBF)
NOZZLE FRICTION DRAG	42.56	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1185.	(LBF)
NOZZLE PRESSURE INTEGRAL	1228.	(LBF)
EXTERNAL FRICTION DRAG	67.51	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1023.	(LBF)
TOTAL EXTERNAL DRAG	-1091.	(LBF)
TOTAL STRUT DRAG	-3.78	(LBF)
CAVITY FORCE	-1328.	(LBF)
CALCULATED LOAD CELL FORCE	-1117.	(LBF)
MEASURED LOAD CELL FORCE	-1095.	(LBF)

FUEL VACUUM SPECIFIC IMPULSE 0.0, 0.0, -161.2, -120.5,

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3168	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.201	(IN)
NOZZLE SHROUD TRAILING EDGE	73.541	(IN)
NOZZLE PLUG TRAILING EDGE	87.293	(IN)
STRUT LEADING EDGE	56.457	(IN)
STRUT TRAILING EDGE	65.057	(IN)
COMBUSTOR EXIT	65.057	(IN)

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.9317	
ADDITIVE DRAG COEFFICIENT	0.0053	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1426	
DELTA PT2	0.1175	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.2584	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1449	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8707	
INLET PROCESS EFFICIENCY - SUBSONIC	0.8989	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9035	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8685	
ENTHALPY AT P0 - SUPERSONIC	3.01	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	26.74	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0324
EQUIVALENCE RATIO	1.048
COMBUSTOR EFFICIENCY	0.641
TOTAL PRESSURE RATIO	0.1947
COMBUSTOR EFFECTIVENESS	0.6947

INJECTOR DISCHARGE COEFFICIENTS 0.7386, 0.6834, 0.7913, 0.6928

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9631
NOZZLE COEFFICIENT - CT	0.8871
PROCESS EFFICIENCY	0.9359
KINETIC ENERGY EFFICIENCY	0.9186

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.302	B
1C	44.300	
2A	48.777	D
2C	46.250	E
3A	54.067	
3B	56.252	
4	44.802	

READING = 0071 BLOCK = 111 TIME = 207.338 MACH 6.0 PT = 742.749 TT = 2909.8

X	DDRAG	CDRAG	CF	HC
4.040E 01	1.281E 02	1.281E 02	2.380E-03	4.485E-02
4.041E 01	1.756E-01	1.283E 02	2.666E-03	3.409E-02
4.130E 01	1.672E 01	1.450E 02	2.778E-03	4.030E-02
4.131E 01	1.754E-01	1.452E 02	2.563E-03	4.293E-02
4.138E 01	1.107E 00	1.463E 02	2.535E-03	4.370E-02
4.150E 01	2.070E 00	1.484E 02	2.547E-03	4.648E-02
4.246E 01	1.543E 01	1.638E 02	2.602E-03	5.462E-02
4.410E 01	2.222E 01	1.860E 02	2.751E-03	7.329E-02
4.431E 01	2.531E 00	1.885E 02	3.023E-03	6.616E-02
4.480E 01	5.881E 00	1.944E 02	3.035E-03	6.598E-02
4.481E 01	1.386E-01	1.946E 02	3.035E-03	6.598E-02
4.625E 01	1.736E 01	2.119E 02	3.374E-03	5.881E-02
4.626E 01	1.167E-01	2.120E 02	2.903E-03	6.996E-02
4.731E 01	1.094E 01	2.230E 02	2.850E-03	6.865E-02
4.734E 01	2.803E-01	2.233E 02	2.946E-03	6.621E-02
4.811E 01	7.928E 00	2.312E 02	2.902E-03	6.482E-02
4.878E 01	7.409E 00	2.386E 02	3.235E-03	5.383E-02
4.879E 01	1.147E-01	2.387E 02	2.841E-03	6.169E-02
4.932E 01	5.648E 00	2.444E 02	2.777E-03	5.852E-02
5.073E 01	1.432E 01	2.587E 02	2.716E-03	5.197E-02
5.283E 01	1.944E 01	2.781E 02	2.739E-03	4.441E-02
5.333E 01	4.465E 00	2.826E 02	2.904E-03	4.060E-02
5.408E 01	6.750E 00	2.893E 02	2.897E-03	3.785E-02
5.484E 01	6.720E 00	2.961E 02	2.883E-03	3.504E-02
5.576E 01	7.924E 00	3.040E 02	2.857E-03	3.314E-02
5.626E 01	2.632E 00	3.066E 02	2.837E-03	3.000E-02
5.632E 01	3.893E-01	3.070E 02	3.002E-03	2.459E-02
5.646E 01	1.020E 00	3.080E 02	2.844E-03	2.561E-02
5.654E 01	5.919E-01	3.086E 02	3.232E-03	2.602E-02
5.682E 01	2.063E 00	3.107E 02	2.995E-03	2.753E-02
5.704E 01	1.624E 00	3.123E 02	2.974E-03	2.674E-02
5.777E 01	5.330E 00	3.176E 02	2.905E-03	2.375E-02
5.879E 01	7.833E 00	3.255E 02	2.756E-03	1.637E-02
6.080E 01	1.421E 01	3.397E 02	2.373E-03	2.810E-02
6.222E 01	9.582E 00	3.493E 02	2.783E-03	2.857E-02
6.468E 01	1.642E 01	3.657E 02	3.012E-03	3.163E-02
6.506E 01	2.208E 00	3.679E 02	3.268E-03	2.882E-02
6.510E 01	2.276E-01	3.681E 02	3.361E-03	2.913E-02
6.530E 01	1.157E 00	3.693E 02	3.357E-03	2.905E-02
6.696E 01	1.008E 01	3.794E 02	3.204E-03	2.184E-02
6.763E 01	3.850E 00	3.832E 02	3.173E-03	1.985E-02
6.840E 01	4.082E 00	3.873E 02	3.105E-03	1.529E-02
6.912E 01	3.298E 00	3.906E 02	3.058E-03	1.253E-02
6.973E 01	2.463E 00	3.931E 02	3.027E-03	1.074E-02
7.068E 01	3.283E 00	3.963E 02	2.976E-03	8.280E-03
7.111E 01	1.308E 00	3.976E 02	2.961E-03	7.630E-03
7.264E 01	4.243E 00	4.019E 02	2.933E-03	6.579E-03
7.279E 01	3.663E-01	4.023E 02	2.922E-03	6.234E-03
7.354E 01	1.533E 00	4.038E 02	2.850E-03	4.364E-03
7.354E 01	2.515E-03	4.038E 02	2.849E-03	4.353E-03
7.487E 01	8.785E-01	4.047E 02	2.882E-03	5.352E-03
7.772E 01	2.099E 00	4.068E 02	2.937E-03	7.661E-03
8.162E 01	2.289E 00	4.091E 02	2.861E-03	5.682E-03
8.443E 01	9.737E-01	4.100E 02	2.812E-03	4.689E-03
8.729E 01	4.223E-01	4.104E 02	2.856E-03	6.270E-03
8.729E 01	0.000	4.104E 02	2.856E-03	6.273E-03

READING = 0071 BLOCK = 111 TIME = 207.338 MACH 6.0 PT = 742.749 TT = 2909.8

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.468E 01	1.844E 01	1.844E 01	5.700E 02	-5.496E 03	-2.749E 03	-2.747E 03	4.289E 03	4.899E 01	2.483E-02	4.899E 01	2.483E-02
6.506E 01	2.002E 01	1.932E 01	5.700E 02	-5.543E 03	-2.765E 03	-2.777E 03	4.337E 03	5.320E 01	2.696E-02	5.132E 01	2.601E-02
6.510E 01	2.002E 01	1.941E 01	5.700E 02	-5.548E 03	-2.767E 03	-2.781E 03	4.342E 03	5.320E 01	2.696E-02	5.157E 01	2.613E-02
6.530E 01	1.906E 01	1.987E 01	5.700E 02	-5.572E 03	-2.776E 03	-2.797E 03	4.368E 03	5.065E 01	2.567E-02	5.280E 01	2.676E-02
6.696E 01	1.109E 01	8.710E 00	7.325E 02	-5.754E 03	-2.836E 03	-2.918E 03	4.583E 03	2.946E 01	1.493E-02	2.314E 01	1.173E-02
6.763E 01	7.898E 00	8.887E 00	9.176E 02	-5.818E 03	-2.855E 03	-2.963E 03	4.665E 03	2.098E 01	1.063E-02	2.361E 01	1.197E-02
6.840E 01	4.230E 00	6.840E 00	1.108E 03	-5.891E 03	-2.873E 03	-3.018E 03	4.760E 03	1.124E 01	5.695E-03	1.817E 01	9.209E-03
6.912E 01	3.315E 00	4.925E 00	1.230E 03	-5.960E 03	-2.886E 03	-3.074E 03	4.848E 03	8.807E 00	4.463E-03	1.308E 01	6.631E-03
6.973E 01	2.540E 00	4.069E 00	1.310E 03	-6.017E 03	-2.895E 03	-3.122E 03	4.922E 03	6.748E 00	3.420E-03	1.081E 01	5.478E-03
7.068E 01	1.865E 00	2.735E 00	1.397E 03	-6.095E 03	-2.906E 03	-3.189E 03	5.036E 03	4.956E 00	2.511E-03	7.266E 00	3.682E-03
7.111E 01	1.560E 00	2.555E 00	1.427E 03	-6.125E 03	-2.910E 03	-3.215E 03	5.088E 03	4.144E 00	2.100E-03	6.788E 00	3.440E-03
7.264E 01	1.460E 00	1.915E 00	1.515E 03	-6.202E 03	-2.921E 03	-3.281E 03	5.273E 03	3.878E 00	1.965E-03	5.088E 00	2.578E-03
7.279E 01	1.450E 00	1.692E 00	1.522E 03	-6.207E 03	-2.922E 03	-3.285E 03	5.290E 03	3.852E 00	1.952E-03	4.494E 00	2.278E-03
7.354E 01	1.392E 00	5.750E-01	1.564E 03	-6.239E 03	-2.927E 03	-3.312E 03	5.374E 03	3.699E 00	1.875E-03	1.528E 00	7.742E-04
7.354E 01	1.392E 00	5.690E-01	1.565E 03	-6.239E 03	-2.927E 03	-3.312E 03	5.375E 03	3.698E 00	1.874E-03	1.512E 00	7.661E-04
7.487E 01	1.290E 00	0.000	1.593E 03	-6.301E 03	-2.935E 03	-3.366E 03	5.426E 03	3.427E 00	1.737E-03	0.000	0.000
7.772E 01	2.100E 00	0.000	1.661E 03	-6.315E 03	-2.949E 03	-3.366E 03	5.525E 03	5.579E 00	2.827E-03	0.000	0.000
8.162E 01	1.420E 00	0.000	1.736E 03	-6.329E 03	-2.964E 03	-3.366E 03	5.630E 03	3.773E 00	1.912E-03	0.000	0.000
8.443E 01	1.110E 00	0.000	1.764E 03	-6.342E 03	-2.976E 03	-3.366E 03	5.684E 03	2.949E 00	1.494E-03	0.000	0.000
8.729E 01	1.640E 00	0.000	1.798E 03	-6.363E 03	-2.997E 03	-3.366E 03	5.707E 03	4.357E 00	2.208E-03	0.000	0.000
8.729E 01	1.641E 00	0.000	1.798E 03	-6.363E 03	-2.997E 03	-3.366E 03	5.707E 03	4.360E 00	2.210E-03	0.000	0.000

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.040E 00	0.000	-4.420E-01	0.000	0.000	0.000	2.470E-02	2.763E 00	1.400E-03	0.000	0.000
1.836E 01	1.040E 00	0.000	-3.463E 01	0.000	0.000	0.000	1.634E 02	2.763E 00	1.400E-03	0.000	0.000
3.070E 01	2.890E 00	0.000	-1.939E 02	0.000	0.000	0.000	5.053E 02	7.678E 00	3.891E-03	0.000	0.000
3.508E 01	3.899E 00	0.000	-4.139E 02	0.000	0.000	0.000	6.804E 02	1.036E 01	5.250E-03	0.000	0.000
3.519E 01	4.222E 00	5.561E 00	-4.787E 02	0.000	0.000	0.000	6.855E 02	1.122E 01	5.684E-03	1.477E 01	7.487E-03
3.520E 01	4.239E 00	5.532E 00	-4.788E 02	0.000	0.000	0.000	6.858E 02	1.126E 01	5.707E-03	1.470E 01	7.449E-03
3.555E 01	5.220E 00	3.864E 00	-4.918E 02	0.000	0.000	0.000	7.208E 02	1.387E 01	7.028E-03	1.027E 01	5.202E-03
3.587E 01	5.031E 00	2.350E 00	-5.131E 02	-3.935E 02	-3.935E 02	0.000	7.530E 02	1.336E 01	6.773E-03	6.243E 00	3.164E-03
3.606E 01	4.915E 00	3.468E 00	-5.264E 02	-3.979E 02	-3.979E 02	0.000	7.727E 02	1.306E 01	6.617E-03	9.214E 00	4.669E-03
3.648E 01	4.239E 00	5.899E 00	-5.458E 02	-4.076E 02	-4.076E 02	0.000	8.164E 02	1.126E 01	5.707E-03	1.567E 01	7.942E-03
3.701E 01	5.270E 00	8.966E 00	-5.685E 02	-4.445E 02	-4.204E 02	-2.408E 01	8.722E 02	1.400E 01	7.095E-03	2.382E 01	1.207E-02
3.733E 01	4.938E 00	1.080E 01	-5.804E 02	-4.606E 02	-4.284E 02	-3.220E 01	9.064E 02	1.312E 01	6.648E-03	2.869E 01	1.454E-02
3.803E 01	4.200E 00	1.447E 01	-5.944E 02	-4.969E 02	-4.471E 02	-4.976E 01	9.832E 02	1.116E 01	5.655E-03	3.844E 01	1.948E-02
3.835E 01	8.005E 00	1.612E 01	-5.994E 02	-5.142E 02	-4.567E 02	-5.759E 01	1.019E 03	2.127E 01	1.078E-02	4.284E 01	2.171E-02
3.875E 01	1.285E 01	1.758E 01	-6.203E 02	-5.389E 02	-4.714E 02	-6.748E 01	1.064E 03	3.413E 01	1.730E-02	4.671E 01	2.367E-02
3.882E 01	1.365E 01	1.782E 01	-6.243E 02	-5.432E 02	-4.741E 02	-6.911E 01	1.072E 03	3.626E 01	1.838E-02	4.736E 01	2.400E-02
3.901E 01	1.597E 01	1.765E 01	-6.355E 02	-5.563E 02	-4.825E 02	-7.381E 01	1.094E 03	4.243E 01	2.150E-02	4.688E 01	2.376E-02
3.933E 01	1.877E 01	1.735E 01	-6.565E 02	-5.794E 02	-4.980E 02	-8.148E 01	1.130E 03	4.987E 01	2.527E-02	4.609E 01	2.336E-02
3.950E 01	2.030E 01	1.313E 01	-6.701E 02	-5.929E 02	-5.073E 02	-8.562E 01	1.150E 03	5.393E 01	2.733E-02	3.487E 01	1.767E-02
3.982E 01	1.817E 01	5.400E 00	-6.982E 02	-6.193E 02	-5.262E 02	-9.309E 01	1.187E 03	4.827E 01	2.446E-02	1.435E 01	7.270E-03
4.000E 01	1.694E 01	5.169E 00	-7.153E 02	-6.355E 02	-5.382E 02	-9.732E 01	1.209E 03	4.500E 01	2.280E-02	1.373E 01	6.959E-03
4.040E 01	2.078E 01	4.664E 00	-7.533E 02	-6.733E 02	-5.662E 02	-1.071E 02	1.256E 03	5.521E 01	2.798E-02	1.239E 01	6.279E-03
4.041E 01	2.088E 01	4.651E 00	-7.542E 02	-6.743E 02	-5.669E 02	-1.074E 02	1.257E 03	5.546E 01	2.811E-02	1.236E 01	6.262E-03
4.130E 01	2.945E 01	3.526E 00	-8.632E 02	-7.903E 02	-6.361E 02	-1.543E 02	1.362E 03	7.823E 01	3.964E-02	9.367E 00	4.747E-03
4.131E 01	2.954E 01	3.513E 00	-8.646E 02	-7.919E 02	-6.369E 02	-1.550E 02	1.363E 03	7.848E 01	3.977E-02	9.334E 00	4.730E-03
4.138E 01	3.017E 01	3.431E 00	-8.736E 02	-8.026E 02	-6.423E 02	-1.603E 02	1.371E 03	8.014E 01	4.061E-02	9.116E 00	4.620E-03
4.150E 01	3.135E 01	5.712E 00	-8.903E 02	-8.236E 02	-6.528E 02	-1.708E 02	1.386E 03	8.329E 01	4.221E-02	1.517E 01	7.690E-03
4.246E 01	2.659E 01	2.348E 01	-9.501E 02	-1.021E 03	-7.447E 02	-2.760E 02	1.501E 03	7.063E 01	3.580E-02	6.239E 01	3.162E-02
4.410E 01	5.048E 01	5.379E 01	-9.111E 02	-1.447E 03	-9.524E 02	-4.951E 02	1.699E 03	1.341E 02	6.797E-02	1.429E 02	7.242E-02
4.431E 01	5.360E 01	5.343E 01	-9.081E 02	-1.510E 03	-9.845E 02	-5.252E 02	1.725E 03	1.424E 02	7.216E-02	1.419E 02	7.193E-02
4.480E 01	6.075E 01	5.260E 01	-9.089E 02	-1.664E 03	-1.063E 03	-6.017E 02	1.784E 03	1.614E 02	8.179E-02	1.397E 02	7.081E-02
4.481E 01	6.071E 01	5.258E 01	-9.097E 02	-1.668E 03	-1.064E 03	-6.037E 02	1.786E 03	1.613E 02	8.173E-02	1.397E 02	7.079E-02
4.625E 01	5.559E 01	5.014E 01	-8.487E 02	-2.160E 03	-1.293E 03	-8.669E 02	1.963E 03	1.477E 02	7.485E-02	1.332E 02	6.751E-02
4.626E 01	5.556E 01	5.012E 01	-8.480E 02	-2.164E 03	-1.295E 03	-8.689E 02	1.964E 03	1.476E 02	7.480E-02	1.332E 02	6.748E-02
4.731E 01	5.182E 01	4.835E 01	-7.442E 02	-2.530E 03	-1.451E 03	-1.078E 03	2.094E 03	1.377E 02	6.977E-02	1.284E 02	6.509E-02
4.734E 01	5.185E 01	4.830E 01	-7.421E 02	-2.539E 03	-1.455E 03	-1.084E 03	2.097E 03	1.377E 02	6.981E-02	1.283E 02	6.503E-02
4.811E 01	5.255E 01	4.169E 01	-6.433E 02	-2.796E 03	-1.565E 03	-1.231E 03	2.194E 03	1.396E 02	7.075E-02	1.108E 02	5.613E-02
4.878E 01	3.599E 01	3.599E 01	-5.243E 02	-3.002E 03	-1.655E 03	-1.347E 03	2.277E 03	9.562E 01	4.846E-02	9.562E 01	4.846E-02
4.879E 01	3.591E 01	3.591E 01	-5.224E 02	-3.005E 03	-1.657E 03	-1.348E 03	2.278E 03	9.540E 01	4.835E-02	9.540E 01	4.835E-02
4.932E 01	3.138E 01	3.138E 01	-4.294E 02	-3.159E 03	-1.726E 03	-1.433E 03	2.345E 03	8.336E 01	4.225E-02	8.336E 01	4.225E-02
5.073E 01	2.557E 01	2.557E 01	-2.189E 02	-3.528E 03	-1.900E 03	-1.629E 03	2.522E 03	6.793E 01	3.442E-02	6.793E 01	3.442E-02
5.283E 01	2.111E 01	2.111E 01	3.807E 01	-3.987E 03	-2.127E 03	-1.860E 03	2.789E 03	5.609E 01	2.842E-02	5.609E 01	2.842E-02
5.333E 01	2.022E 01	2.022E 01	9.180E 01	-4.083E 03	-2.175E 03	-1.907E 03	2.852E 03	5.373E 01	2.723E-02	5.373E 01	2.723E-02
5.408E 01	1.819E 01	1.819E 01	1.661E 02	-4.222E 03	-2.244E 03	-1.978E 03	2.948E 03	4.832E 01	2.449E-02	4.832E 01	2.449E-02
5.484E 01	1.612E 01	1.612E 01	2.326E 02	-4.355E 03	-2.310E 03	-2.045E 03	3.046E 03	4.284E 01	2.171E-02	4.284E 01	2.171E-02
5.576E 01	1.483E 01	1.483E 01	3.043E 02	-4.506E 03	-2.383E 03	-2.123E 03	3.164E 03	3.940E 01	1.997E-02	3.940E 01	1.997E-02
5.626E 01	1.413E 01	1.413E 01	4.707E 02	-4.581E 03	-2.417E 03	-2.164E 03	3.209E 03	3.753E 01	1.902E-02	3.753E 01	1.902E-02
5.632E 01	7.912E 00	1.405E 01	4.747E 02	-4.588E 03	-2.421E 03	-2.168E 03	3.216E 03	2.102E 01	1.065E-02	3.733E 01	1.892E-02
5.646E 01	7.912E 00	1.385E 01	4.838E 02	-4.608E 03	-2.429E 03	-2.179E 03	3.234E 03	2.102E 01	1.065E-02	3.681E 01	1.865E-02
5.654E 01	1.374E 01	1.374E 01	4.893E 02	-4.619E 03	-2.433E 03	-2.185E 03	3.245E 03	3.651E 01	1.850E-02	3.651E 01	1.850E-02
5.682E 01	1.335E 01	1.335E 01	5.070E 02	-4.656E 03	-2.449E 03	-2.207E 03	3.280E 03	3.547E 01	1.797E-02	3.547E 01	1.797E-02
5.704E 01	1.256E 01	1.256E 01	5.196E 02	-4.686E 03	-2.462E 03	-2.225E 03	3.309E 03	3.338E 01	1.692E-02	3.338E 01	1.692E-02
5.777E 01	1.005E 01	1.005E 01	5.503E 02	-4.779E 03	-2.498E 03	-2.281E 03	3.402E 03	2.670E 01	1.353E-02	2.670E 01	1.353E-02
5.879E 01	5.437E 00	5.437E 00	5.682E 02	-4.889E 03	-2.543E 03	-2.346E 03	3.532E 03	1.445E 01	7.321E-03	1.445E 01	7.321E-03
6.080E 01	1.017E 01	1.017E 01	5.700E 02	-5.081E 03	-2.610E 03	-2.471E 03	3.790E 03	2.703E 01	1.370E-02	2.703E 01	1.370E-02
6.222E 01	1.271E 01	1.271E 01	5.700E 02	-5.222E 03	-2.654E 03	-2.568E 03	3.972E 03	3.376E 01	1.711E-02	3.376E 01	1.711E-02

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	G	IVAC	PHI	ETAC
COMBUSTOR		38	31 4														
57.767	52.297	3578	510.5(1313)	1.2633	21.725	3216											
57.767	10.050	2486	56.7(871)	1.3024	21.734	2721	1.751	4765	2.653	0.27100	26.048	0.3753	4824	20.069	185.2	1.05	0.40
COMBUSTOR	0	39	32 7														
58.787	91.383	2935	506.3(1062)	1.2953	21.161	2989											
58.787	5.437	1472	-59.7(499)	1.3521	21.161	2162	2.461	5322	2.549	0.26927	26.048	0.3777	4834	22.270	185.6	1.05	0.24
COMBUSTOR	0	40	33 6														
60.797	54.337	3560	498.9(1305)	1.2640	21.734	3209											
60.797	10.175	2457	41.8(860)	1.3033	21.742	2706	1.767	4782	2.647	0.27864	26.048	0.3650	4823	20.709	185.2	1.05	0.40
COMBUSTOR	0	41	34 4														
62.217	49.554	3806	493.5(1402)	1.2495	21.979	3280											
62.217	12.706	2855	85.6(1012)	1.2859	21.997	2881	1.568	4518	2.670	0.28619	26.048	0.3553	4814	20.093	184.8	1.05	0.47
COMBUSTOR	0	42	35 5														
64.681	40.741	4287	483.0(1593)	1.2142	22.484	3393											
64.681	18.441	3709	203.4(1349)	1.2430	22.544	3189	1.173	3740	2.710	0.27128	26.048	0.3749	4799	15.768	184.2	1.05	0.61
COMBUSTOR	0	43	36 4														
65.057	37.366	4365	481.2(1624)	1.2067	22.569	3406											
65.057	19.671	3902	248.1(1427)	1.2308	22.635	3248	1.052	3415	2.720	0.25220	26.048	0.4032	4797	13.386	184.1	1.05	0.64
COMBUSTOR REGEN	44	37 21															
65.057	37.366	4572	603.5(1714)	1.1926	22.503	3471											
65.057	18.147	4062	328.8(1495)	1.2193	22.610	3300	1.123	3708	2.748	0.25220	26.048	0.4032	4876	14.531	187.2	1.05	0.64
NOZZLE AE	45	38 5															
87.293	37.366	4365	481.2(1591)	1.2067	22.569	3406											
87.293	1.069	2096	-502.5(704)	1.3051	22.674	2449	2.865	7016	2.720	0.05250	26.048	1.9371	6210	5.724	238.4	1.05	0.64
NOZZLE PO	46	39 5															
87.293	37.366	4365	481.2(1591)	1.2067	22.569	3406											
87.293	0.376	1632	-672.3(535)	1.3265	22.674	2178	3.487	7597	2.720	0.02572	26.048	3.9545	6532	3.036	250.8	1.05	0.64
NOZZLE AE REGEN	47	40 5															
87.293	37.366	4572	603.5(1714)	1.1926	22.503	3471											
87.293	1.137	2285	-430.8(776)	1.2976	22.674	2550	2.821	7194	2.748	0.05250	26.048	1.9371	6388	5.870	245.3	1.05	0.64
NOZZLE PO REGEN	48	41 5															
87.293	37.366	4572	603.5(1714)	1.1926	22.503	3471											
87.293	0.376	1761	-625.9(581)	1.3200	22.674	2258	3.474	7843	2.748	0.02460	26.048	4.1340	6749	2.999	259.1	1.05	0.64
FICTIVE COMBUSTR	68	61 0															
65.057	191.923	5246	481.2(1982)	1.1619	23.486	3592											
65.057	0.376	1584	-1208.5(501)	1.3152	24.004	2077	4.426	9195	2.595	0.03394	26.048	2.9963	7733	4.850	296.9	1.05	1.00
FICTIVE NOZZLE	69	62 0															
87.293	27.161	4298	449.7(1596)	1.2072	22.573	3381											
87.293	1.236	2290	-429.0(778)	1.2974	22.674	2552	2.598	6631	2.741	0.05250	26.048	1.9371	5982	5.410	229.6	1.05	0.64

READING = 0071 BLOCK = 111 TIME = 207.338 MACH 6.0 PT = 742.749 TT = 2909.8

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
COMBUSTOR	0	19	12 2														
46.260	89.671	2611	594.3(847)	1.3111	23.084	2716											
46.260	52.841	2300	482.6(736)	1.3217	23.084	2559	0.924	2364	2.317	0.81137	25.742	0.1239	3568	29.806	138.6	0.65	0.09
COMBUSTOR	0	20	13 4														
47.310	85.623	2766	580.1(900)	1.3036	23.260	2776											
47.310	50.085	2437	461.0(782)	1.3146	23.260	2617	0.933	2441	2.335	0.75494	25.742	0.1331	3661	28.636	142.2	0.65	0.16
COMBUSTOR	0	21	14 2														
47.337	85.547	2769	579.7(901)	1.3034	23.263	2777											
47.337	50.075	2440	460.7(783)	1.3145	23.263	2618	0.932	2440	2.336	0.75388	25.742	0.1333	3662	28.590	142.3	0.65	0.16
COMBUSTOR	0	22	15 4														
48.110	81.788	2927	569.7(955)	1.2958	23.436	2837											
48.110	47.121	2576	441.2(828)	1.3076	23.436	2673	0.949	2536	2.353	0.70346	25.742	0.1429	3753	27.722	145.8	0.65	0.22
COMBUSTOR	0	23	16 6														
48.777	77.144	2628	578.7(948)	1.3116	20.758	2873											
48.777	35.994	2185	403.5(774)	1.3270	20.758	2635	1.124	2961	2.541	0.65528	26.048	0.1552	3828	30.151	147.0	1.05	0.12
COMBUSTOR	0	24	17 2														
48.787	77.100	2629	578.6(948)	1.3115	20.760	2874											
48.787	35.908	2185	402.9(774)	1.3269	20.760	2635	1.125	2965	2.541	0.65442	26.048	0.1554	3830	30.153	147.0	1.05	0.12
COMBUSTOR	0	25	18 4														
49.317	74.794	2717	572.7(981)	1.3073	20.842	2911											
49.317	31.379	2205	369.5(780)	1.3250	20.842	2640	1.208	3189	2.553	0.61204	26.048	0.1662	3917	30.328	150.4	1.05	0.14
COMBUSTOR	0	26	19 4														
50.727	68.557	2951	558.5(1070)	1.2961	21.066	3004											
50.727	25.569	2341	313.2(828)	1.3169	21.066	2697	1.299	3503	2.584	0.52163	26.048	0.1950	4113	28.399	157.9	1.05	0.21
COMBUSTOR	0	27	20 5														
52.827	60.560	3283	540.9(1199)	1.2797	21.391	3125											
52.827	21.112	2588	254.6(918)	1.3036	21.394	2800	1.352	3785	2.622	0.42753	26.048	0.2379	4351	25.148	167.0	1.05	0.30
COMBUSTOR	0	28	21 4														
53.327	59.043	3351	537.2(1225)	1.2762	21.459	3148											
53.327	20.225	2636	241.3(936)	1.3010	21.463	2818	1.365	3848	2.629	0.41006	26.048	0.2480	4400	24.521	168.9	1.05	0.32
COMBUSTOR	0	29	22 4														
54.077	57.862	3397	531.9(1243)	1.2737	21.512	3162											
54.077	18.189	2623	211.4(930)	1.3006	21.516	2808	1.426	4004	2.634	0.38654	26.048	0.2631	4468	24.054	171.5	1.05	0.34
COMBUSTOR	0	30	23 3														
54.837	57.364	3407	526.8(1246)	1.2730	21.532	3164											
54.837	16.125	2565	178.8(906)	1.3024	21.537	2777	1.503	4173	2.635	0.36553	26.048	0.2782	4527	23.703	173.8	1.05	0.34
COMBUSTOR	0	31	24 4														
55.760	55.619	3468	520.9(1270)	1.2696	21.601	3183											
55.760	14.831	2586	154.8(913)	1.3007	21.606	2782	1.539	4281	2.641	0.34325	26.048	0.2963	4591	22.833	176.3	1.05	0.36
COMBUSTOR	0	32	25 5														
56.262	44.078	3897	518.1(1439)	1.2439	22.013	3309											
56.262	14.128	3082	160.8(1102)	1.2771	22.036	2980	1.419	4228	2.689	0.27640	26.048	0.3679	4755	18.163	182.5	1.05	0.48
COMBUSTOR	0	33	26 5														
56.317	49.582	3585	517.8(1316)	1.2629	21.716	3220											
56.317	10.982	2574	95.7(906)	1.2994	21.725	2767	1.661	4596	2.659	0.27562	26.048	0.3690	4758	19.684	182.7	1.05	0.39
COMBUSTOR	0	34	27 3														
56.457	49.429	3593	517.0(1319)	1.2625	21.725	3222											
56.457	10.883	2578	92.8(907)	1.2992	21.734	2768	1.665	4608	2.660	0.27364	26.048	0.3717	4766	19.595	183.0	1.05	0.40
COMBUSTOR	0	35	28 5														
56.537	44.877	3885	516.6(1434)	1.2447	22.005	3305											
56.537	13.742	3040	147.8(1086)	1.2788	22.027	2962	1.450	4296	2.686	0.27675	26.048	0.3675	4771	18.476	183.2	1.05	0.47
COMBUSTOR	0	36	29 3														
56.817	45.427	3875	515.2(1431)	1.2454	21.998	3303											
56.817	13.350	3004	136.1(1071)	1.2802	22.020	2947	1.478	4356	2.685	0.27579	26.048	0.3688	4787	18.668	183.8	1.05	0.47
COMBUSTOR	0	37	30 4														
57.043	46.760	3814	514.0(1406)	1.2493	21.942	3286											
57.043	12.565	2891	116.8(1027)	1.2851	21.960	2900	1.537	4459	2.678	0.27537	26.048	0.3693	4798	19.080	184.2	1.05	0.46

03/03/75

READING = 0071 BLOCK = 111 TIME = 207.338 MACH 6.0 PT = 742.749 TT = 2909.8

RAMJET PERFORMANCE

SUMMARY REPORT

	P	T	H	GAMMA	MOLWT	SONV	MACH	VEL	S	W/A	W	A/AC	MOMTM	Q	IVAC	PHI	ETAC
WIND TUNNEL		1	0 5														
0.000	742.749	2910	643.1(769)	1.2961	28.898	2547											
0.000	0.376	388	-35.8(93)	1.3986	28.897	966	6.032	5828	1.819	0.10573	25.230	0.9317	4661	9.577	184.7		
SPIKE TIP NS		2	0 5														
0.600	18.162	2910	643.1(769)	1.2960	28.897	2547											
0.600	16.500	2846	624.0(751)	1.2981	28.897	2521	0.387	975	2.074	0.10573	25.230	0.9317	4702	1.602	186.4		
WIND TUNNEL		3	0 0														
0.000	742.749	2910	643.1(769)	1.2961	28.898	2547											
0.000	0.382	390	-35.4(94)	1.3986	28.897	968	6.016	5827	1.819	0.10689	25.509	0.9317	4711	9.679	184.7		
SPIKE TIP NS		4	0 0														
0.600	18.162	2910	643.1(769)	1.2960	28.897	2547											
0.600	16.458	2845	623.5(750)	1.2981	28.897	2521	0.392	988	2.074	0.10689	25.509	0.9317	4711	1.641	184.7		
INLET THROAT		5	0 4														
40.400	191.923	2821	616.4(743)	1.2989	28.897	2511											
40.400	17.863	1583	264.7(394)	1.3440	28.897	1913	2.192	4195	1.903	0.88499	25.230	0.1113	3799	57.690	150.6		
INLET UPNRSK		6	0 3														
40.400	191.923	2821	616.4(743)	1.2989	28.897	2511											
40.400	15.220	1519	247.7(377)	1.3474	28.897	1877	2.289	4295	1.903	0.80454	25.230	0.1224	3846	53.704	152.4		
INLET DNNRSK		7	0 4														
40.400	107.644	2821	616.4(743)	1.2989	28.897	2511											
40.400	90.380	2709	583.1(710)	1.3025	28.897	2464	0.523	1290	1.942	0.80454	25.230	0.1224	3846	16.124	152.4		
COMBUSTOR	0	8	1 21														
40.410	161.025	2776	616.4(765)	1.3016	27.531	2554											
40.410	12.764	1489	236.3(387)	1.3505	27.531	1906	2.289	4362	1.990	0.88833	25.329	0.1113	3798	60.212	149.9	0.13	0.07
COMBUSTOR	0	9	2 21														
41.302	127.068	2704	618.3(773)	1.3056	26.377	2580											
41.302	16.486	1638	289.8(447)	1.3444	26.377	2038	1.990	4054	2.067	0.89316	25.417	0.1111	3672	56.272	144.5	0.24	0.04
COMBUSTOR	0	10	3 21														
41.312	132.206	2662	618.2(760)	1.3076	26.333	2563											
41.312	16.528	1594	290.3(434)	1.3470	26.333	2013	2.012	4051	2.060	0.89388	25.417	0.1110	3670	56.276	144.4	0.24	0.01
COMBUSTOR	0	11	4 21														
41.377	131.353	2654	617.8(758)	1.3079	26.326	2560											
41.377	16.799	1598	293.5(435)	1.3469	26.326	2016	1.998	4029	2.059	0.89391	25.417	0.1110	3660	55.964	144.0	0.24	0.00
COMBUSTOR	0	12	5 21														
41.500	130.012	2650	617.0(757)	1.3080	26.325	2559											
41.500	18.531	1641	306.3(448)	1.3448	26.325	2041	1.931	3943	2.060	0.89420	25.417	0.1110	3641	54.789	143.3	0.24	0.00
COMBUSTOR	0	13	6 21														
42.460	120.945	2626	609.3(749)	1.3088	26.325	2548											
42.460	25.036	1787	349.6(491)	1.3383	26.325	2125	1.696	3604	2.062	0.88536	25.417	0.1121	3566	49.594	140.3	0.24	0.00
COMBUSTOR	0	14	7 4														
44.097	96.145	3139	592.5(904)	1.2845	26.930	2728											
44.097	52.136	2735	460.0(775)	1.2980	26.931	2560	1.006	2575	2.120	0.85540	25.417	0.1160	3583	34.224	141.0	0.24	0.47
COMBUSTOR	0	15	8 2														
44.310	95.997	3140	590.0(905)	1.2843	26.939	2728											
44.310	53.511	2753	463.1(781)	1.2973	26.940	2567	0.981	2520	2.120	0.85379	25.417	0.1162	3583	33.432	141.0	0.24	0.48
COMBUSTOR	0	16	9 2														
44.800	95.668	3115	583.9(896)	1.2853	26.931	2719											
44.800	56.673	2768	470.4(786)	1.2969	26.932	2574	0.926	2383	2.117	0.85039	25.417	0.1167	3577	31.498	140.7	0.24	0.47
COMBUSTOR	0	17	10 2														
44.812	95.636	3114	583.8(896)	1.2853	26.930	2718											
44.812	56.642	2767	470.2(785)	1.2969	26.931	2574	0.926	2383	2.117	0.85038	25.417	0.1167	3576	31.498	140.7	0.24	0.47
COMBUSTOR	0	18	11 11														
46.250	89.706	2610	594.4(847)	1.3112	23.082	2715											
46.250	52.867	2299	482.8(736)	1.3217	23.082	2558	0.924	2363	2.317	0.81179	25.742	0.1238	3567	29.812	138.6	0.65	0.09

Reading 71

t = 207.34 sec.

RAMJET PERFORMANCE

ENGINE PERFORMANCE

CALCULATED THRUST	997.	(LBF)
MEASURED THRUST	1023.	(LBF)
CALCULATED SPECIFIC IMPULSE	1539.	(LBF-SEC/LBM)
MEASURED SPECIFIC IMPULSE	1579.	(LBF-SEC/LBM)
CALCULATED THRUST COEFFICIENT	0.4059	
MEASURED THRUST COEFFICIENT	0.4166	

REGENERATIVE-COOLED ENGINE PERFORMANCE CALCULATED

STREAM THRUST	5881.	(LBF)
NET THRUST	1195.	(LBF)
SPECIFIC IMPULSE	1844.	(LBF-SEC/LBM)
THRUST COEFFICIENT	0.4863	

MOMENTUM AND FORCES

INLET FRICTION DRAG	127.9	(LBF)
INLET MOMENTUM CHANGE	-878.8	(LBF)
COMBUSTOR FRICTION DRAG	240.6	(LBF)
COMBUSTOR STRUT DRAG	-9.05	(LBF)
COMBUSTOR MOMENTUM CHANGE	769.	(LBF)
NOZZLE FRICTION DRAG	39.65	(LBF)
NOZZLE STRUT DRAG	-0.00	(LBF)
NOZZLE MOMENTUM CHANGE	1106.	(LBF)
NOZZLE PRESSURE INTEGRAL	1146.	(LBF)
EXTERNAL FRICTION DRAG	67.14	(LBF)
EXTERNAL PRESSURE INTEGRAL	-1017.	(LBF)
TOTAL EXTERNAL DRAG	-1085.	(LBF)
TOTAL STRUT DRAG	-9.05	(LBF)
CAVITY FORCE	-1255.	(LBF)
CALCULATED LOAD CELL FORCE	-1343.	(LBF)
MEASURED LOAD CELL FORCE	-1315.	(LBF)
FUEL VACUUM SPECIFIC IMPULSE	0.0, 0.0, -158.7, -118.1,	

INLET

ANGLE OF ATTACK	3.000	(DEGREES)
MASS FLOW RATIO	0.9317	
ADDITIVE DRAG COEFFICIENT	0.0053	
LIMITING PRESSURE RECOVERY EFFICIENCY	0.1428	
DELTA PT2	0.1176	(PSI)
TOTAL PRESSURE RECOVERY - SUPERSONIC	0.2590	
TOTAL PRESSURE RECOVERY - SUBSONIC	0.1451	
INLET PROCESS EFFICIENCY - SUPERSONIC	0.8704	
INLET PROCESS EFFICIENCY - SUBSONIC	0.8986	
KINETIC ENERGY EFFICIENCY - SUPERSONIC	0.9052	
KINETIC ENERGY EFFICIENCY - SUBSONIC	0.8701	
ENTHALPY AT P0 - SUPERSONIC	3.36	(BTU/LBM)
ENTHALPY AT P0 - SUBSONIC	27.23	(BTU/LBM)

COMBUSTOR

FUEL-AIR RATIO	0.0257	
EQUIVALENCE RATIO	0.830	
COMBUSTOR EFFICIENCY	0.699	
TOTAL PRESSURE RATIO	0.1851	
COMBUSTOR EFFECTIVENESS	0.6985	
INJECTOR DISCHARGE COEFFICIENTS	0.7286, 0.6918, 0.7988, 0.6923	

NOZZLE

VACUUM STREAM THRUST COEFFICIENT - CS	0.9607	
NOZZLE COEFFICIENT - CT	0.8860	
PROCESS EFFICIENCY	0.9260	
KINETIC ENERGY EFFICIENCY	0.9131	

STATIONS

NOMINAL COWL LEADING EDGE	34.884	(IN)
SPIKE TRANSLATION	0.3148	(IN)
INLET THROAT	40.400	(IN)
COWL LEADING EDGE	35.199	(IN)
NOZZLE SHROUD TRAILING EDGE	73.539	(IN)
NOZZLE PLUG TRAILING EDGE	87.291	(IN)
STRUT LEADING EDGE	56.455	(IN)
STRUT TRAILING EDGE	65.055	(IN)
COMBUSTOR EXIT	65.055	(IN)

FUEL INJECTORS

INJECTORS	STATION	VALVE
1A	40.400	A
1B	41.300	B
1C	44.300	
2A	48.775	D
2C	46.250	E
3A	54.065	
3B	56.250	
4	44.800	

READING = 0071 BLOCK = 96 TIME = 193.838 MACH 6.0 PT = 743.499 TT = 2912.6

X	ODRAG	CDRAG	CF	HC
4.040E 01	1.279E 02	1.279E 02	2.381E-03	4.490E-02
4.041E 01	1.758E-01	1.281E 02	2.658E-03	3.407E-02
4.130E 01	1.671E 01	1.448E 02	2.779E-03	4.032E-02
4.131E 01	1.760E-01	1.450E 02	2.563E-03	4.297E-02
4.137E 01	1.109E 00	1.461E 02	2.534E-03	4.377E-02
4.150E 01	2.110E 00	1.482E 02	2.547E-03	4.638E-02
4.246E 01	1.556E 01	1.638E 02	2.601E-03	5.288E-02
4.409E 01	2.273E 01	1.865E 02	2.739E-03	7.148E-02
4.431E 01	2.646E 00	1.892E 02	2.988E-03	6.519E-02
4.480E 01	6.110E 00	1.953E 02	3.001E-03	6.498E-02
4.481E 01	1.182E-01	1.954E 02	2.997E-03	6.505E-02
4.625E 01	1.847E 01	2.139E 02	3.258E-03	5.678E-02
4.626E 01	1.279E-01	2.140E 02	2.856E-03	6.556E-02
4.731E 01	1.233E 01	2.263E 02	2.784E-03	6.196E-02
4.733E 01	2.962E-01	2.266E 02	2.846E-03	6.054E-02
4.811E 01	8.989E 00	2.356E 02	2.804E-03	5.861E-02
4.877E 01	7.877E 00	2.435E 02	3.129E-03	4.982E-02
4.878E 01	1.169E-01	2.436E 02	2.788E-03	5.594E-02
4.931E 01	5.705E 00	2.493E 02	2.743E-03	5.379E-02
5.072E 01	1.421E 01	2.635E 02	2.691E-03	4.700E-02
5.282E 01	1.916E 01	2.827E 02	2.698E-03	3.998E-02
5.332E 01	4.343E 00	2.870E 02	2.854E-03	3.714E-02
5.407E 01	6.512E 00	2.935E 02	2.861E-03	3.462E-02
5.483E 01	6.456E 00	3.000E 02	2.852E-03	3.221E-02
5.576E 01	7.632E 00	3.076E 02	2.829E-03	3.000E-02
5.626E 01	2.529E 00	3.101E 02	2.794E-03	2.707E-02
5.631E 01	3.735E-01	3.105E 02	2.948E-03	2.200E-02
5.645E 01	9.727E-01	3.115E 02	2.775E-03	2.297E-02
5.653E 01	5.698E-01	3.121E 02	3.214E-03	2.312E-02
5.681E 01	1.995E 00	3.141E 02	2.932E-03	2.469E-02
5.704E 01	1.550E 00	3.156E 02	2.908E-03	2.437E-02
5.776E 01	4.997E 00	3.206E 02	2.866E-03	2.295E-02
5.878E 01	7.413E 00	3.280E 02	2.792E-03	1.495E-02
6.079E 01	1.360E 01	3.416E 02	2.377E-03	2.660E-02
6.221E 01	9.118E 00	3.507E 02	2.802E-03	2.649E-02
6.468E 01	1.569E 01	3.664E 02	3.015E-03	2.919E-02
6.505E 01	2.114E 00	3.685E 02	3.258E-03	2.659E-02
6.509E 01	2.184E-01	3.688E 02	3.349E-03	2.688E-02
6.529E 01	1.109E 00	3.699E 02	3.345E-03	2.681E-02
6.695E 01	9.643E 00	3.795E 02	3.192E-03	2.035E-02
6.762E 01	3.683E 00	3.832E 02	3.162E-03	1.862E-02
6.839E 01	3.922E 00	3.871E 02	3.092E-03	1.442E-02
6.911E 01	3.173E 00	3.903E 02	3.041E-03	1.173E-02
6.972E 01	2.322E 00	3.926E 02	2.998E-03	9.531E-03
7.067E 01	2.854E 00	3.955E 02	2.913E-03	6.194E-03
7.110E 01	1.068E 00	3.965E 02	2.903E-03	5.903E-03
7.263E 01	3.779E 00	4.003E 02	2.911E-03	6.170E-03
7.278E 01	3.521E-01	4.007E 02	2.899E-03	5.835E-03
7.353E 01	1.440E 00	4.021E 02	2.813E-03	3.836E-03
7.354E 01	2.293E-03	4.021E 02	2.812E-03	3.825E-03
7.486E 01	7.504E-01	4.029E 02	2.816E-03	4.040E-03
7.771E 01	1.854E 00	4.047E 02	2.911E-03	7.029E-03
8.161E 01	2.156E 00	4.069E 02	2.832E-03	5.160E-03
8.442E 01	9.201E-01	4.078E 02	2.787E-03	4.349E-03
8.728E 01	3.998E-01	4.082E 02	2.829E-03	5.723E-03
8.729E 01	0.000	4.082E 02	2.829E-03	5.726E-03

READING = 0071 BLOCK = 96 TIME = 193.838 MACH 6.0 PT = 743.499 TT = 2912.6

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.468E 01	1.758E 01	1.758E 01	3.145E 02	-5.117E 03	-2.570E 03	-2.547E 03	4.289E 03	4.662E 01	2.365E-02	4.662E 01	2.365E-02
6.505E 01	1.871E 01	1.839E 01	3.145E 02	-5.158E 03	-2.585E 03	-2.573E 03	4.337E 03	4.962E 01	2.517E-02	4.876E 01	2.473E-02
6.509E 01	1.871E 01	1.847E 01	3.145E 02	-5.162E 03	-2.586E 03	-2.576E 03	4.342E 03	4.962E 01	2.517E-02	4.898E 01	2.484E-02
6.529E 01	1.783E 01	1.890E 01	3.145E 02	-5.183E 03	-2.594E 03	-2.589E 03	4.368E 03	4.729E 01	2.399E-02	5.012E 01	2.542E-02
6.695E 01	1.055E 01	8.600E 00	4.694E 02	-5.340E 03	-2.648E 03	-2.692E 03	4.583E 03	2.798E 01	1.419E-02	2.280E 01	1.157E-02
6.762E 01	7.570E 00	8.835E 00	6.494E 02	-5.395E 03	-2.665E 03	-2.730E 03	4.665E 03	2.007E 01	1.018E-02	2.343E 01	1.188E-02
6.839E 01	4.145E 00	6.739E 00	8.354E 02	-5.458E 03	-2.680E 03	-2.778E 03	4.760E 03	1.099E 01	5.575E-03	1.787E 01	9.065E-03
6.911E 01	3.236E 00	4.780E 00	9.553E 02	-5.519E 03	-2.692E 03	-2.827E 03	4.848E 03	8.580E 00	4.352E-03	1.267E 01	6.429E-03
6.972E 01	2.465E 00	3.486E 00	1.030E 03	-5.569E 03	-2.700E 03	-2.870E 03	4.922E 03	6.536E 00	3.315E-03	9.243E 00	4.688E-03
7.067E 01	1.825E 00	1.470E 00	1.104E 03	-5.636E 03	-2.710E 03	-2.926E 03	5.036E 03	4.839E 00	2.454E-03	3.898E 00	1.977E-03
7.110E 01	1.535E 00	1.556E 00	1.127E 03	-5.660E 03	-2.713E 03	-2.947E 03	5.088E 03	4.070E 00	2.065E-03	4.125E 00	2.092E-03
7.263E 01	1.426E 00	1.860E 00	1.203E 03	-5.726E 03	-2.724E 03	-3.002E 03	5.273E 03	3.781E 00	1.918E-03	4.932E 00	2.502E-03
7.278E 01	1.415E 00	1.636E 00	1.209E 03	-5.731E 03	-2.725E 03	-3.006E 03	5.290E 03	3.752E 00	1.903E-03	4.338E 00	2.200E-03
7.353E 01	1.246E 00	5.150E-01	1.249E 03	-5.758E 03	-2.730E 03	-3.029E 03	5.374E 03	3.303E 00	1.675E-03	1.366E 00	6.927E-04
7.354E 01	1.245E 00	5.090E-01	1.250E 03	-5.759E 03	-2.730E 03	-3.029E 03	5.375E 03	3.300E 00	1.674E-03	1.350E 00	6.846E-04
7.486E 01	9.450E-01	0.000	1.273E 03	-5.813E 03	-2.737E 03	-3.076E 03	5.427E 03	2.506E 00	1.271E-03	0.000	0.000
7.771E 01	1.985E 00	0.000	1.332E 03	-5.826E 03	-2.750E 03	-3.076E 03	5.525E 03	5.264E 00	2.670E-03	0.000	0.000
8.161E 01	1.325E 00	0.000	1.403E 03	-5.839E 03	-2.764E 03	-3.076E 03	5.630E 03	3.513E 00	1.782E-03	0.000	0.000
8.442E 01	1.065E 00	0.000	1.429E 03	-5.851E 03	-2.775E 03	-3.076E 03	5.684E 03	2.824E 00	1.432E-03	0.000	0.000
8.728E 01	1.540E 00	0.000	1.461E 03	-5.870E 03	-2.795E 03	-3.076E 03	5.707E 03	4.084E 00	2.071E-03	0.000	0.000
8.729E 01	1.541E 00	0.000	1.461E 03	-5.870E 03	-2.795E 03	-3.076E 03	5.707E 03	4.086E 00	2.073E-03	0.000	0.000

READING = 0071 BLOCK = 96 TIME = 193.838 MACH 6.0 PT = 743.499 TT = 2912.6

XABS	P-IB	P-OB	PDA	QOX	Q-IB	Q-OB	CAWALL	P-IB/PSO	P-IB/PTO	P-OB/PSO	P-OB/PTO
6.981E-01	1.040E 00	0.000	-4.424E-01	0.000	0.000	0.000	2.470E-02	2.758E 00	1.399E-03	0.000	0.000
1.836E 01	1.040E 00	0.000	-3.464E 01	0.000	0.000	0.000	1.634E 02	2.758E 00	1.399E-03	0.000	0.000
3.070E 01	2.880E 00	0.000	-1.935E 02	0.000	0.000	0.000	5.053E 02	7.637E 00	3.874E-03	0.000	0.000
3.508E 01	3.902E 00	0.000	-4.133E 02	0.000	0.000	0.000	6.804E 02	1.035E 01	5.249E-03	0.000	0.000
3.519E 01	4.214E 00	5.572E 00	-4.780E 02	0.000	0.000	0.000	6.854E 02	1.117E 01	5.668E-03	1.478E 01	7.495E-03
3.520E 01	4.231E 00	5.543E 00	-4.781E 02	0.000	0.000	0.000	6.857E 02	1.122E 01	5.690E-03	1.470E 01	7.455E-03
3.555E 01	5.200E 00	3.846E 00	-4.911E 02	0.000	0.000	0.000	7.209E 02	1.379E 01	6.994E-03	1.020E 01	5.173E-03
3.586E 01	5.030E 00	2.325E 00	-5.123E 02	-3.718E 02	-3.718E 02	0.000	7.529E 02	1.334E 01	6.766E-03	6.165E 00	3.127E-03
3.606E 01	4.925E 00	3.458E 00	-5.259E 02	-3.759E 02	-3.759E 02	0.000	7.729E 02	1.306E 01	6.624E-03	9.169E 00	4.651E-03
3.648E 01	4.252E 00	5.896E 00	-5.453E 02	-3.851E 02	-3.851E 02	0.000	8.164E 02	1.127E 01	5.719E-03	1.563E 01	7.930E-03
3.701E 01	5.260E 00	8.972E 00	-5.677E 02	-4.209E 02	-3.972E 02	-2.363E 01	8.726E 02	1.395E 01	7.075E-03	2.379E 01	1.207E-02
3.732E 01	4.917E 00	1.080E 01	-5.798E 02	-4.363E 02	-4.047E 02	-3.154E 01	9.063E 02	1.304E 01	6.614E-03	2.864E 01	1.453E-02
3.803E 01	4.150E 00	1.448E 01	-5.933E 02	-4.712E 02	-4.224E 02	-4.882E 01	9.834E 02	1.100E 01	5.582E-03	3.840E 01	1.948E-02
3.834E 01	7.912E 00	1.612E 01	-5.977E 02	-4.879E 02	-4.314E 02	-5.645E 01	1.018E 03	2.098E 01	1.064E-02	4.276E 01	2.169E-02
3.875E 01	1.275E 01	1.757E 01	-6.186E 02	-5.116E 02	-4.454E 02	-6.621E 01	1.064E 03	3.382E 01	1.715E-02	4.659E 01	2.363E-02
3.881E 01	1.353E 01	1.780E 01	-6.224E 02	-5.157E 02	-4.479E 02	-6.776E 01	1.072E 03	3.587E 01	1.820E-02	4.720E 01	2.394E-02
3.901E 01	1.586E 01	1.762E 01	-6.335E 02	-5.284E 02	-4.560E 02	-7.243E 01	1.094E 03	4.206E 01	2.133E-02	4.672E 01	2.370E-02
3.932E 01	1.866E 01	1.732E 01	-6.546E 02	-5.505E 02	-4.706E 02	-7.991E 01	1.130E 03	4.949E 01	2.510E-02	4.594E 01	2.330E-02
3.950E 01	2.022E 01	1.304E 01	-6.677E 02	-5.636E 02	-4.796E 02	-8.404E 01	1.150E 03	5.363E 01	2.720E-02	3.459E 01	1.754E-02
3.981E 01	1.811E 01	5.350E 00	-6.957E 02	-5.888E 02	-4.975E 02	-9.133E 01	1.187E 03	4.801E 01	2.435E-02	1.419E 01	7.196E-03
4.000E 01	1.686E 01	5.121E 00	-7.129E 02	-6.046E 02	-5.090E 02	-9.554E 01	1.209E 03	4.471E 01	2.268E-02	1.358E 01	6.887E-03
4.040E 01	2.074E 01	4.626E 00	-7.508E 02	-6.409E 02	-5.357E 02	-1.052E 02	1.256E 03	5.501E 01	2.790E-02	1.227E 01	6.221E-03
4.041E 01	2.084E 01	4.613E 00	-7.517E 02	-6.418E 02	-5.364E 02	-1.054E 02	1.257E 03	5.526E 01	2.803E-02	1.223E 01	6.205E-03
4.130E 01	2.948E 01	3.512E 00	-8.607E 02	-7.527E 02	-6.022E 02	-1.505E 02	1.362E 03	7.817E 01	3.965E-02	9.312E 00	4.723E-03
4.131E 01	2.958E 01	3.499E 00	-8.620E 02	-7.542E 02	-6.030E 02	-1.512E 02	1.363E 03	7.843E 01	3.978E-02	9.279E 00	4.706E-03
4.137E 01	3.021E 01	3.419E 00	-8.710E 02	-7.644E 02	-6.082E 02	-1.562E 02	1.371E 03	8.011E 01	4.063E-02	9.065E 00	4.598E-03
4.150E 01	3.142E 01	5.469E 00	-8.882E 02	-7.848E 02	-6.183E 02	-1.664E 02	1.386E 03	8.333E 01	4.227E-02	1.450E 01	7.356E-03
4.246E 01	2.629E 01	2.119E 01	-9.533E 02	-9.731E 02	-7.059E 02	-2.672E 02	1.501E 03	6.971E 01	3.536E-02	5.619E 01	2.850E-02
4.409E 01	4.885E 01	4.797E 01	-9.382E 02	-1.382E 03	-9.023E 02	-4.794E 02	1.699E 03	1.295E 02	6.570E-02	1.272E 02	6.451E-02
4.431E 01	5.181E 01	4.721E 01	-9.382E 02	-1.442E 03	-9.329E 02	-5.092E 02	1.725E 03	1.374E 02	6.969E-02	1.252E 02	6.349E-02
4.480E 01	5.857E 01	4.548E 01	-9.495E 02	-1.591E 03	-1.006E 03	-5.841E 02	1.785E 03	1.553E 02	7.878E-02	1.206E 02	6.117E-02
4.481E 01	5.850E 01	4.545E 01	-9.500E 02	-1.594E 03	-1.008E 03	-5.857E 02	1.786E 03	1.551E 02	7.868E-02	1.205E 02	6.113E-02
4.625E 01	4.716E 01	4.037E 01	-9.206E 02	-2.068E 03	-1.224E 03	-8.439E 02	1.963E 03	1.250E 02	6.343E-02	1.071E 02	5.430E-02
4.626E 01	4.708E 01	4.034E 01	-9.202E 02	-2.071E 03	-1.225E 03	-8.458E 02	1.964E 03	1.248E 02	6.332E-02	1.070E 02	5.425E-02
4.731E 01	3.881E 01	3.664E 01	-8.417E 02	-2.423E 03	-1.372E 03	-1.051E 03	2.094E 03	1.029E 02	5.220E-02	9.715E 01	4.928E-02
4.733E 01	3.876E 01	3.655E 01	-8.405E 02	-2.431E 03	-1.375E 03	-1.056E 03	2.097E 03	1.028E 02	5.214E-02	9.692E 01	4.916E-02
4.811E 01	3.725E 01	3.325E 01	-7.597E 02	-2.678E 03	-1.479E 03	-1.200E 03	2.194E 03	9.877E 01	5.010E-02	8.818E 01	4.473E-02
4.877E 01	3.043E 01	3.043E 01	-6.608E 02	-2.874E 03	-1.563E 03	-1.310E 03	2.277E 03	8.068E 01	4.092E-02	8.068E 01	4.092E-02
4.878E 01	3.038E 01	3.038E 01	-6.592E 02	-2.877E 03	-1.565E 03	-1.312E 03	2.278E 03	8.057E 01	4.087E-02	8.057E 01	4.087E-02
4.931E 01	2.813E 01	2.813E 01	-5.784E 02	-3.021E 03	-1.630E 03	-1.391E 03	2.345E 03	7.459E 01	3.783E-02	7.459E 01	3.783E-02
5.072E 01	2.264E 01	2.264E 01	-3.907E 02	-3.364E 03	-1.792E 03	-1.573E 03	2.522E 03	6.004E 01	3.046E-02	6.004E 01	3.046E-02
5.282E 01	1.856E 01	1.856E 01	-1.638E 02	-3.784E 03	-2.003E 03	-1.781E 03	2.789E 03	4.922E 01	2.497E-02	4.922E 01	2.497E-02
5.332E 01	1.823E 01	1.823E 01	-1.160E 02	-3.872E 03	-2.048E 03	-1.824E 03	2.852E 03	4.833E 01	2.452E-02	4.833E 01	2.452E-02
5.407E 01	1.659E 01	1.659E 01	-4.865E 01	-3.998E 03	-2.112E 03	-1.886E 03	2.948E 03	4.398E 01	2.231E-02	4.398E 01	2.231E-02
5.483E 01	1.492E 01	1.492E 01	1.243E 01	-4.117E 03	-2.172E 03	-1.945E 03	3.046E 03	3.958E 01	2.007E-02	3.958E 01	2.007E-02
5.576E 01	1.342E 01	1.342E 01	7.817E 01	-4.252E 03	-2.240E 03	-2.012E 03	3.164E 03	3.558E 01	1.805E-02	3.558E 01	1.805E-02
5.626E 01	1.260E 01	1.260E 01	2.226E 02	-4.318E 03	-2.271E 03	-2.047E 03	3.209E 03	3.342E 01	1.695E-02	3.342E 01	1.695E-02
5.631E 01	6.862E 00	1.251E 01	2.262E 02	-4.325E 03	-2.274E 03	-2.050E 03	3.216E 03	1.820E 01	9.230E-03	3.318E 01	1.683E-02
5.645E 01	6.862E 00	1.229E 01	2.343E 02	-4.342E 03	-2.282E 03	-2.060E 03	3.234E 03	1.820E 01	9.230E-03	3.258E 01	1.653E-02
5.653E 01	1.216E 01	1.216E 01	2.392E 02	-4.351E 03	-2.286E 03	-2.065E 03	3.245E 03	3.223E 01	1.635E-02	3.223E 01	1.635E-02
5.681E 01	1.170E 01	1.170E 01	2.548E 02	-4.385E 03	-2.301E 03	-2.084E 03	3.280E 03	3.102E 01	1.574E-02	3.102E 01	1.574E-02
5.704E 01	1.133E 01	1.133E 01	2.660E 02	-4.411E 03	-2.312E 03	-2.099E 03	3.309E 03	3.003E 01	1.523E-02	3.003E 01	1.523E-02
5.776E 01	1.012E 01	1.012E 01	2.950E 02	-4.493E 03	-2.346E 03	-2.147E 03	3.402E 03	2.685E 01	1.362E-02	2.685E 01	1.362E-02
5.878E 01	5.175E 00	5.175E 00	3.127E 02	-4.590E 03	-2.386E 03	-2.203E 03	3.532E 03	1.372E 01	6.960E-03	1.372E 01	6.960E-03
6.079E 01	1.005E 01	1.005E 01	3.145E 02	-4.757E 03	-2.447E 03	-2.310E 03	3.790E 03	2.665E 01	1.352E-02	2.665E 01	1.352E-02
6.221E 01	1.231E 01	1.231E 01	3.145E 02	-4.881E 03	-2.486E 03	-2.395E 03	3.972E 03	3.265E 01	1.656E-02	3.265E 01	1.656E-02